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W E E K L Y R E P O R T S
Of the Offices Of
WESTERN IRRIGATION AGRICULTURE
and
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XXVIII

January 2, 1926

No. 1

Demonstrations on Reclamation Projects

Belle Fourche

Ten inquiries were received during the week ending January 2 regarding the disposal of hay. Farmers are asking \$13 per ton, f.o.b. Newell, for second and third cuttings of alfalfa. We hope to move most of the surplus hay at this price.

A number of inquiries were received from possible purchasers of sheep. At present there are very few sheep for sale. One owner has 1100 two-year olds, for which he is asking \$16 per head.

Two flocks of poultry were culled for the purpose of selecting breeding pens.

A two-day trip was made east of the project, accompanied by a dairyman, for the purpose of inspecting a herd of registered milking Shorthorn cattle. A number of local dairymen are interested in this herd of cattle, and as they are priced reasonably there is no reason why the deal cannot be consummated.

Reclamation figures now show that 65 per cent of the beef sires and 60 per cent of the dairy sires are purebred. Two years ago less than 30 per cent of either class of sires were purebred.

F. E. Miller.

Flathead

The temperature is dropping to a few degrees below freezing, while eastern Montana and the eastern United States in general were enjoying from 20 to 30 degrees below zero weather.

A Water Users' Association meeting at D'Aste was attended and slides of the Lake County Cow-Testing Association cows and other Montana cattle were shown. The prospects for starting a dairy calf club were discussed at some length with the members of the association who were present. Pictures from which to make slides were taken of several cows at the Chapman farm.

Assistance was given to a purchaser of purebred heifers and bull in getting extended pedigrees for them. Milk sheets were supplied to one dairyman who is starting to use them. Cow-testing association contracts were supplied to the cow tester for use in getting the new members.

Control of strawberry leaf roller was advised. Irrigated pasture mixtures were given to Sam Johnson, who plans to put in five acres.

Sheep were inspected at one farm and suggestions given. A conference was held with Mr. Undem regarding the sheep placed with the farmers.

The chief efforts during this period were devoted to the completion of the annual report.

11313A
11313B

Flathead (continued)

Eggs are 35 cents and butter-fat is 45 cents.

L. B. Miller

Newlands

During the week ending December 19 the time was very largely devoted to work on the annual report and attending to the miscellaneous calls for assistance that came to the office.

On Friday the annual meeting of the County Farm Bureau organization was held. Delegates from the various farm bureau centers met and elected officers for the new year. The State Extension Director explained the new relationship between the Demonstration Office and the State Extension Office and the County Farm Bureau. The budget for local expenses was prepared for submission to the county commissioners. The assistant State director made a few remarks setting forth some accomplishments of extension work in an adjoining State, after which the program of Extension work for 1926 was given to those present.

On Monday of the week ending December 26 the western representative of the American Jersey Cattle Club visited the Nevada State Jersey Cattle Club, with headquarters at Fallon. It so happened at this meeting that the Nevada State Jersey Cattle Club had its final organization meeting, when constitution and by-laws were finally adopted. The western representative was on his return trip from the annual American Jersey Cattle Club meeting in New York. He addressed the club and gave an interesting talk on the American Jersey Cattle Club organization, its purposes, and the kind and extent of work done by it. While this man was here arrangements were made for motion pictures from this organization to be sent to the local club to be shown in the theaters at Fallon. The first of these pictures will be shown early in January.

The greater part of the week has been devoted to the preparation of the annual report.

The marketing of eggs from the Newlands Project has been one of the principal subjects of discussion during the week ending January 2. This discussion culminated in a meeting of the poultrymen at the Extension Office on Saturday. At this time a hurried meeting was called and twenty of the largest producers were present. A temporary organization was perfected and all present joined. All those in attendance were delegated to find out the sentiment for an organization in the different communities which they represented and the number of chickens kept. This information is to be sent to the Extension Office on Monday, and arrangements were made for the Agriculturist to go to San Francisco next week and interview the manager of the Poultry Producers' Organization of Central California.

The California association has given some assurances that a marketing agreement can be made with them. The purpose of this trip will be to obtain definite information on the cost of operating the local egg exchange and the cost of marketing through their agency. It is expected that this information will result in a permanent organization of poultrymen on the Newlands Project. A second meeting will be held on next

Newlands (continued)

Saturday at the Extension Office, and a very large attendance is expected.

Some attention has been devoted to chicken-pox vaccination during the week and other miscellaneous calls for assistance.

The work on the annual report was finally completed during the week.

L. E. Cline.

North Platte

During the three weeks ending January 2 the roads have been very bad. Frequent and heavy snows rendered them impassable in places. Necessary drives were made with great difficulty.

A number of the farmers on the project have been losing cattle, apparently from hemorrhagic septicemia. Local veterinarians claim to be having fairly good success vaccinating against it. They are using the aggressin that is prepared for that purpose.

Usually the cattle that die have been running on cornstalks, but that is not always the case. The Agriculturist made a post-mortem examination of two cows this week that showed symptoms of hemorrhagic septicemia, and they had been fed nothing but alfalfa and ground barley. They were apparently well when the owner milked them in the evening, and the next morning he found them both dead. Six cases have been reported in the last two weeks.

Another case of hog cholera was reported this week. The herd of 50 head was vaccinated immediately. About 15 had already died. These hogs were shipped from Denver. This makes the third case of cholera reported in December.

Considerable time has been devoted to locating and selecting cockerels and toms for farmers. Poultry growers are giving a great deal more attention to the quality of their breeding stock than they ever did before. This increased interest is due largely to the activities of the local poultry association. This week the Agriculturist placed 16 cockerels, 5 toms, and 10 turkey hens.

Two culling demonstrations were given this week and seven requests were placed on the waiting list.

D. H. Propps.

W E E K L Y R E P O R T S
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Vol. XXVIII

January 9, 1926

No. 2

Western Irrigation Agriculture

San Antonio

During the three weeks ending January 2 the following meteorological data were recorded: Maximum temperature 70, December 14; minimum 20, December 27; greatest daily range 33, December 14 and 20; rainfall 2.17 inches, the greatest amount in 24 hours being .78 inch January 1 and the greatest amount in one storm being 1.49 inches December 31 to January 2; sky clear 6 days, partly cloudy 2 days, and cloudy 13 days. The average wind velocity for any 24 hours during this period was 12.3 miles per hour and occurred December 27, coincident with the minimum temperature of 20 degrees. More exposed water pipes under buildings were frozen and bursted the night of December 27 than at any other time during the past six years. Freezing temperatures at this time extended to the Lower Rio Grande Valley and Gulf Coast, but the amount of damage done to citrus and garden crops was reported as having been negligible. Light flurries of sleet and snow occurred the night of December 27 and throughout the 28th, which added only .01 inch to the year's total precipitation.

Construction of a new farm entrance consumed the major portion of farm labor during the period covered by this report. The roadway and footpath gates, with their wooden posts and surmounting sign, were removed and in their place were erected concrete entrance posts, a gate for animals and animal-drawn vehicles, and a concrete-galvanized pipe stock guard for automotive vehicles. The concrete culvert was extended 8 feet north to accommodate the additional width of roadway needed for the double entrance.

Approximately two-thirds of Field C-6 (west portion) was double-disked December 24 and 26, and oats for grain feed production were seeded December 31.

Several days were spent by station laborers repairing damage done to the plumbing system by frozen water pipes.

Summary of Climatic Conditions of 1925

The year 1925 began with a decided shortage of stored moisture in the soil. Two widely separated rainy periods provided the only penetrating moisture which was received between June 23, 1924 and January 1, 1925—1.98 inches September 11 to 13, and 2.40 inches December 1 and 2. No rainfall of agricultural significance occurred during the first 126 days of 1925, the total being only .77 inch. All fall-seeded crops such as oats, wheat, barley, rye, and flax (grown in this region only at the station), which had been encouraged into starting growth by the December rains, suffered so severely as to produce only dwarfed plants and, except as to flax, no grain. Precipitation in the amounts of .29 inch, .41

San Antonio (continued)

inch, and 1.15 inches was recorded for May 7, 8, and 10, respectively. This was sufficient to germinate and start the growth of such spring crops as had been seeded in dry seed beds and to encourage some late planting of cotton, sorghum, etc. From May 11 to August 30, inclusive, there was recorded only 3.22 inches of rain, which was made up of 11 widely separated local showers. Portions of some plats and fields of corn and grain sorghum were able to make a stunted growth but failed to make grain. Hay sorghums and Johnson grass remained alive in favored locations and were able to produce a small amount of forage the latter part of the season. On the more shallow soils, and where planted on late fall, winter, or spring-plowed land, all these crops burned out completely. A series of showers which extended over a period of three days, August 31 to September 2, inclusive, gave 1.86 inches of rain. The total precipitation as recorded in the city of San Antonio and at other points throughout the region varied over quite a range, but it was sufficient in all cases to be of great benefit to pastures and meadows. Four inches of rain fell during September, the greater portion coming in such amounts and at such times as to be of real value to growing crops. Rainfall during October, November, and December, totaling 1.53, 1.70, and 1.64 inches, respectively, while sufficient to maintain growth of fall-seeded crops, came in such amounts as to add only slightly to the storage supply. There is considerably more water stored in the soil at the close of the year 1925 than was present at the start, but the reserve supply is so small that the growth and fruiting of winter crops will be very dependent on the nature of the winter and spring rainfall of 1926.

From the middle of December, 1924 through the first half of February temperatures were, with few exceptions, subnormal. Dry winds, mostly of moderate intensity, prevailed during this same period, with the result that much of the December rainfall was dissipated and winter crops made very little use of the moisture. The mean temperature from the middle of February through July was above normal; for August, September, and October it was practically normal; and for November and December the mean was 3.1 degrees and 4.1 degrees, respectively, below normal. The average mean temperature for the year was 1.2 degrees higher than the 19-year average, 1907 to 1925, inclusive.

Mean daily wind velocities were practically normal during January, February, November, and December, but showed excesses of from .5 to 1.9 miles per hour for the other eight months. The mean for the year was 4.3 miles per hour as compared with the average mean of 3.5 miles per hour for the past 19 years. No seriously violent wind-storms occurred.

Evaporation from a free water surface during 1925 amounted to 77.12 inches as compared with the 19-year average of 66.15 inches. This is the highest annual evaporation since records were begun in 1907. Monthly excesses ranging from .27 inch for January to 2.37 inches for July were recorded for the first eight months, while deficiencies of from .16 inch for October to .74 inch for September were recorded during the last four months.

The year 1925 was without doubt the most disastrous since the establishment of the San Antonio Field Station, and according to old settlers it came nearer being a complete failure agriculturally than any since the region has been farmed.

Geo. T. Ratliffe.

Scottsbluff

The average maximum temperature for the four weeks ending January 9 was 29, with a maximum of 43 on December 23; the average minimum was 8, with a minimum of 12 below on the 22d. The recorded precipitation was only 0.55 inch.

There was an 8-inch snowfall on the 13th, accompanied by high winds. Roads were badly drifted and travel was stopped for some time. High winds and snow flurries have continued throughout the month, keeping the roads badly drifted and making travel by automobile difficult and off the main roads almost impossible. There has been a total snowfall of from 12 to 15 inches, and further back on the dry land it was from 2 to 3 feet deep.

The Great Western Sugar Company has announced its contract for the Colorado and Nebraska districts. It carries a minimum payment of \$8.00 a ton for sugar beets, with the usual sliding scale prices and a bonus for quantity production. The Colorado growers are greatly pleased with it, but the Nebraska division has turned it down, as it does not give them all they wanted. One particular grievance is that the company is signing contracts with individual growers instead of through the Association. The Great Western has begun work again on the Minatare plant.

The Holly Sugar Company is also working on its Minatare and Torrington plants. Their contract, put out something over a month ago, carries a payment of \$6.50 as a minimum, with a promise to pay as much as any company in the valley; but up to the present time no statement has been made as to whether they will meet the price of the Great Western. They claim to have 30,000 acres signed up.

James A. Holden.

Belle Fourche

Heavy snow and roads filled with drifts made travel by automobile impractical during the week ending January 9. Two lots of whole milk and two samples of skim-milk were brought to the office for testing.

A market for some of the surplus alfalfa hay was located during the week at a price of \$11.80 per ton f.o.b. Newell. Baling will commence and shipments will be made as soon as the weather permits.

Breeding pens for three farmers were selected during the week. These flocks had been culled twice previously, and all but 14 birds of the 208 examined were retained. One article was prepared for publication on the care and winter feeding of poultry.

Two regular meetings were postponed due to the inclement weather. On the local markets eggs are quoted at 30 cents per dozen and butter-fat at 40 cents per pound.

F. E. Miller.

Newlands

The principal activity of this office during the week ending January 9 was in connection with the proposed poultry producers' egg marketing association. The time Thursday and Friday was spent in

Newlands (continued)

San Francisco and Petaluma, California, conferring with the Poultry Producers' Association of Central California and gathering all information that might assist in a cooperative egg marketing association for the Newlands Project. Much time was spent with the general manager of the California Association in going over the various details of the operation of their business and getting suggestions for the local organization. The California Association expressed its willingness to market all surplus eggs that might be accumulated by a local association at actual cost. This will amount to approximately one-half cent per dozen. This one-half cent per dozen is comparable to the commission man's 8 per cent or 10 per cent for handling eggs.

After returning from San Francisco on Saturday, a mass meeting of local poultrymen was held to hear a report of the trip and to discuss the proposed egg marketing association for the project. At this meeting sixty-five of the largest poultry producers were present, and the meeting resulted in an organization, which practically all present joined, and the election of five directors, who will constitute the officers.

A third meeting will take place on Saturday of next week at which time further steps will be made to perfect the organization and draw up a constitution and by-laws and working agreements. The progress made so far toward a cooperative egg marketing association is very encouraging, and it seems quite certain that a good permanent organization is assured.

L. E. Cline.

W E E K L Y R E P O R T S
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Vol. XXVIII

January 16 & January 23, 1926

Nos. 3 & 4

Western Irrigation Agriculture

Newlands

The meteorological data recorded at the station for the four-week period ending January 23 follow: Mean maximum 42, maximum 54 on January 17; mean minimum 15.6, minimum 6 on January 14. There was .03 of an inch of rainfall on January 2 and .02 on January 18, making a total of .05 for the period.

The work at the station has consisted of manuring the garden, overhauling implements and replacing worn-cut parts. The orchard has been pruned, and the greenhouse prepared for spring planting.

Much of the office work has been in the preparation of annual reports. Fifty-seven soil analyses have been made in the laboratory for farmers; also several analyses of water.

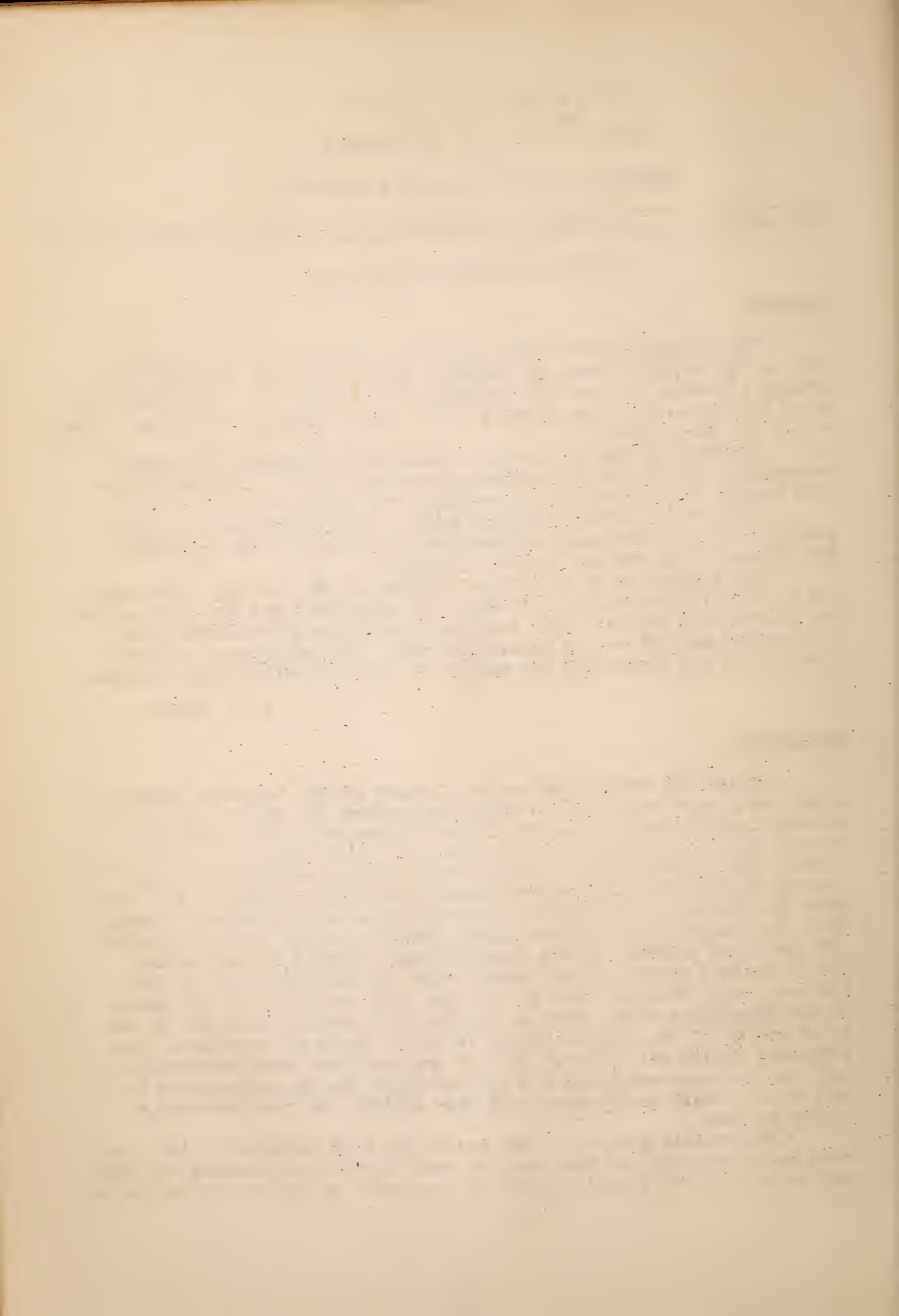
Mr. Headley is an occasional visitor at the station. His trips are chiefly in connection with the dairy experiment and the farm accounting work on the project. One man from his office is stationed here permanently caring for the accounting work. The experiment in dairy feeding has not progressed far enough to draw any definite conclusions.

E. W. Knight.

San Antonio

During the three weeks ending January 23 the following meteorological data were recorded: Maximum temperature 72, January 18 and 19; minimum temperature 27, January 22 and 23; greatest daily range 36, January 17; precipitation, 1.50 inches; sky clear 12 days, partly cloudy 3 days, and cloudy 6 days. A snow-storm, which started about 3 a.m. January 23 and continued almost without interruption until 10 a.m. January 24, yielded .31 inch of the precipitation recorded above. During this same interval the Weather Bureau observer in San Antonio recorded .89 inch, and inasmuch as the depth of snow reported by that office (6-3/4 inches) checked quite closely with the observed depth at the station, it is believed that not all the snow was caught in the gauge at the Experiment Farm. This is the heaviest snowfall recorded by the local office of the Weather Bureau in its 41 years of operation. Temperatures during the first 23 days of the year have been unseasonably low, the average mean being 4.6 degrees below the 19-year average January mean. Small grains have made slow growth, but have suffered no winter-killing.

The greater portion of the period has been unfavorable for field work, and farm labor has been used to catch up on miscellaneous odd jobs. Sufficient oak stove-wood to last the remainder of the winter was hauled,



San Antonio (continued)

sawed, and stored. Mesquite trees in the field east of the Farm residence were grubbed out in an attempt to lessen the likelihood of carrying rootrot in the soil to such time as ornamental plantings may be made in this area. Some work was done on farm roads and the water system.

Dr. C. F. Cook and Mr. J. W. Hubbard, of the office of Crop Acclimatization and Adaptation Investigations, were station visitors January 11.

Geo. T. Ratliffe.

Scottsbluff

The average maximum temperature for the two-week period ending January 23 was 32, with a maximum of 42 on the 14th; the average minimum was 8, with a minimum of 0 below on the morning of the 22d. There was an inch of snow on the 19th with a measured precipitation of .07 inch.

On account of the severe weather and bad condition of the roads few potatoes have been marketed this month. Local buyers have offered up to \$3.75 for table stock and \$4.00 for seed stock, but not a great deal has been sold. The farmers generally are holding for higher prices.

The Holly Sugar Company has announced its withdrawal from the Valley in Nebraska and has stopped all work on its Minutere plant and released all growers in Nebraska. The company expects to continue its Torrington plant and will double its capacity. This company has been contracting beets in Wyoming on the west end of the project for several years and shipping them to its plant at Sheridan.

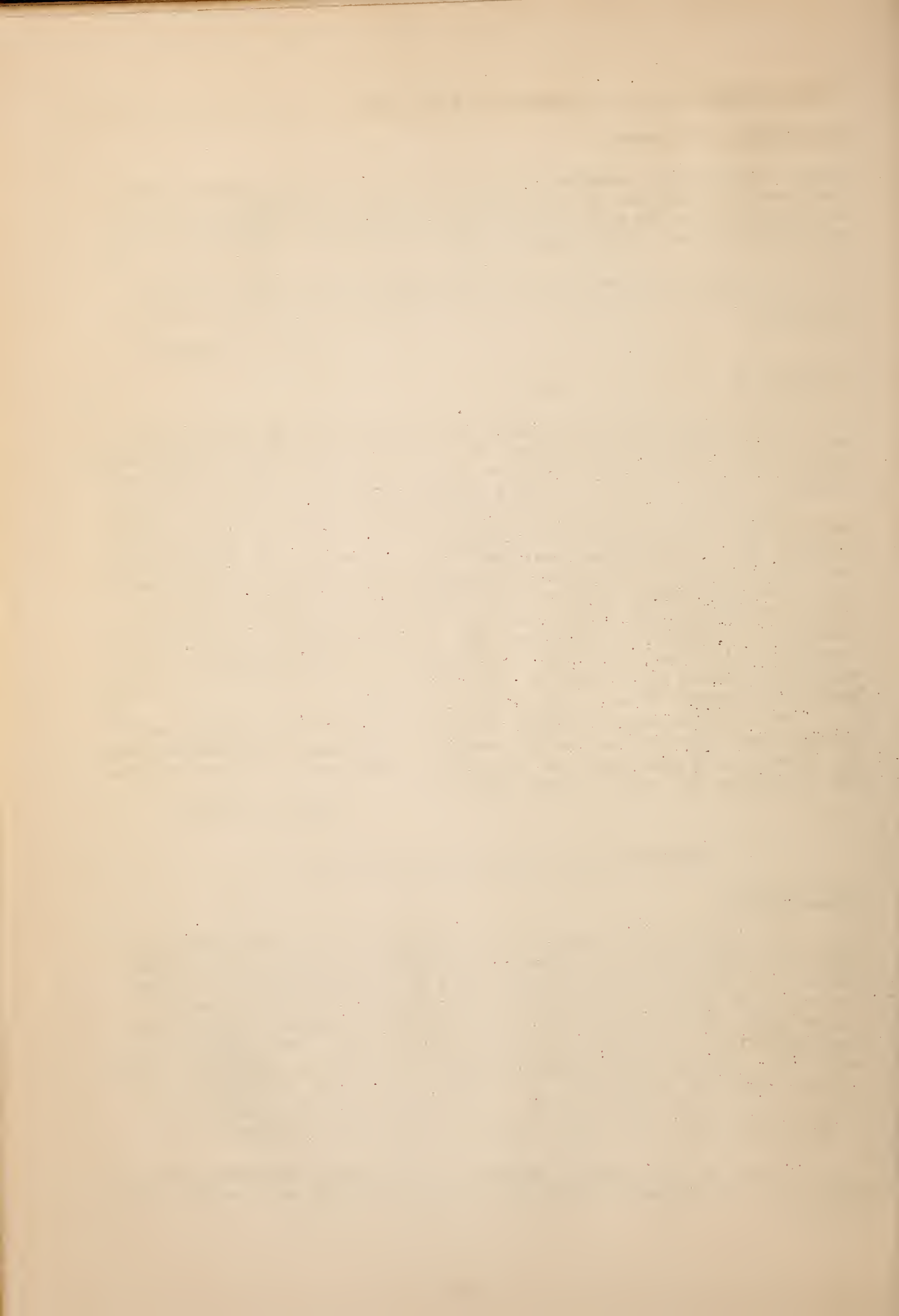
The routine work of caring for the stock has been carried on at the Station. Notwithstanding the weather conditions, the feeding stock are in very good condition and the loss has been small. A car of hogs was shipped to the Denver market this week.

James A. Holden.

Demonstrations on Reclamation ProjectsBelle Fourche

The week ending January 16 was the second succeeding week in which the roads were treacherous and difficult to travel by automobile. Much of the week was spent in the office on routine matters. During the week four purebred Duroc boars were placed on project farms and places found for two registered gilts. One fine flock of Barred Rocks were culled and a breeding pen of 43 hens selected. Two standard bred cocks were secured for breeding purposes. Two lots of milk were tested and one sample of skim-milk. A program was prepared to be given next month by one of our junior clubs. A new market was secured for some of the surplus hay which the farmers are now trying to dispose of.

During the week ending January 23 heavy roads with more snow made travel by automobile impractical; only 24 miles were driven during the week.



Belle Fourche (continued)

Orders for several cars of hay were received, and two car-loads of hay were shipped to the eastern part of the State.

Material and data pertaining to the project were given to the Water Users' Board through this office and the Reclamation office. This data is to be used at a coming State meeting in support of continuing the project as at present by the U. S. Government. It is hoped that a new and more favorable contract can soon be drawn up between the Government and the district if pending favorable legislation goes through Congress.

With almost impassable roads and few telephones, the shipment of registered Shorthorn milking cattle has been delayed. It is not certain that these cattle will be shipped into the project, as practically enough orders have been received to assure a full car.

Butter-fat is quoted at 32 cents and eggs at 25 cents on the local markets.

F. E. Miller.

Newlands

The Nevada State Jersey Breeders' Association, which has been organized by the Jersey breeders on the project, held its regular monthly meeting at the Extension Office on Thursday of the week ending January 16 and mapped out an educational program in cooperation with the Extension Office. Included in this program will be a showing of a series of motion pictures that are supplied by the Extension Department of the American Jersey Cattle Club. The first of this series, known as "Hearts and Home," was shown during the week at two of the local theaters. The attendance was good and the pictures made a good impression. Other pictures will be sent as fast as they are available.

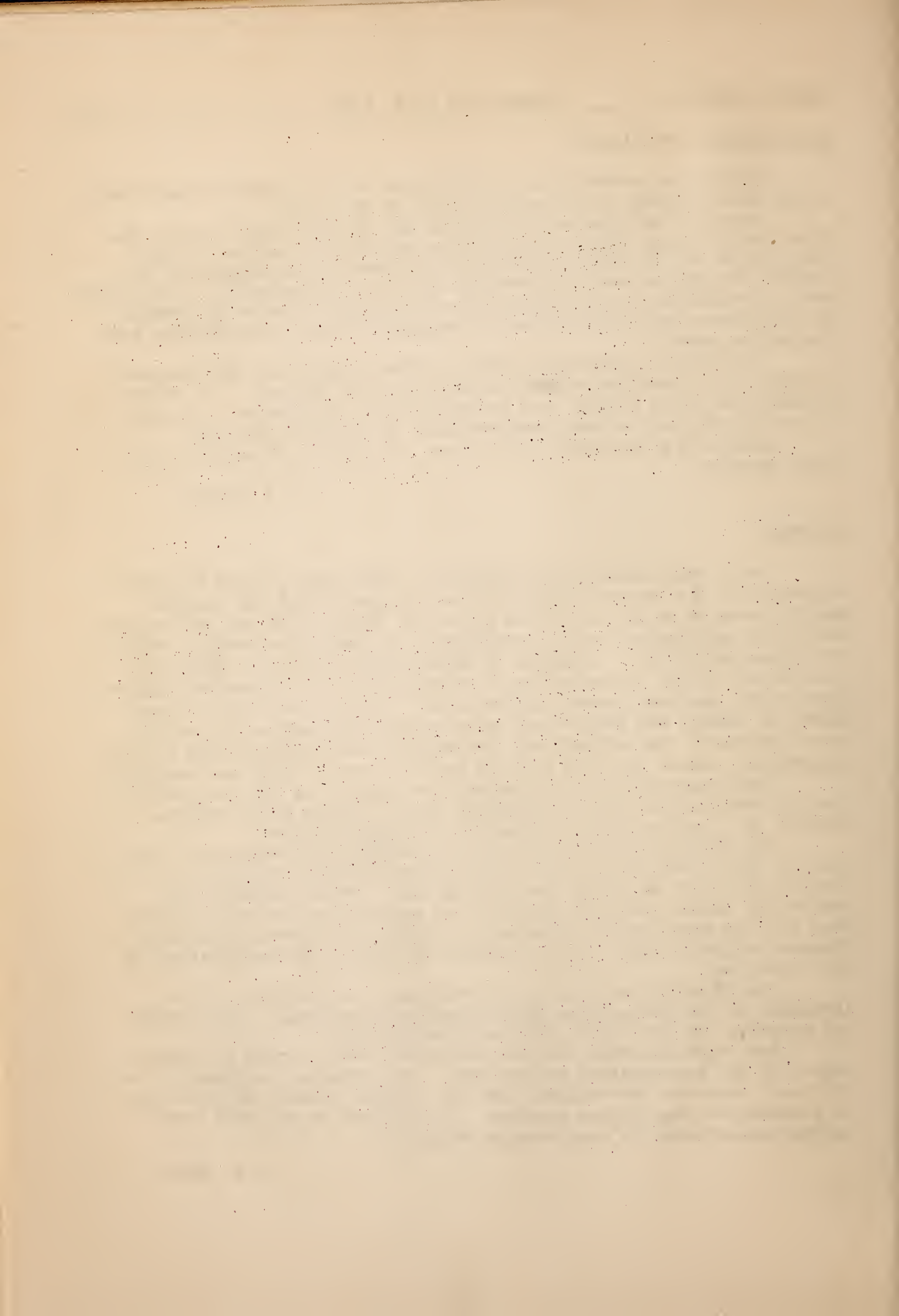
The Jersey Cattle Club pledged its support to the local herd-testing association, and also pledged itself, among other things, to support the local Extension Office in its dairy program.

The third meeting of the poultry producers of the project was held in the office on Saturday, and further progress was made in perfecting the local egg-marketing association. It is expected that during the coming week the constitution and by-laws and sales agreement will be drawn up for signatures. Temporary quarters and cold storage accommodations will be secured as soon as the association is well under way.

Considerable time during the week has been devoted to the interests of the Cooperative Egg-Marketing Association. One article was prepared for the local press on this subject.

Some time has been devoted during the week to work in connection with the herd-testing association. One article was prepared for the local press on this subject and one circular letter was sent out to prospective association members. It is hoped to get this herd-testing association in operation in February.

L. E. Cline.



W E E K L Y R E P O R T S
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Vol. XXVIII

January 30 - February 13, 1926

Nos. 5, 6, & 7

Western Irrigation Agriculture

San Antonio

The following meteorological data were recorded during the three weeks ending February 13: Maximum temperature 81 (Feb. 12 and 13), minimum 21 (Jan. 24), greatest daily range 39 (Feb. 4), precipitation .01 inch (Jan. 27); sky clear 15 days, partly cloudy 2 days, and cloudy 4 days.

Temperatures remained subnormal throughout January, but a period of spring-like weather prevailed during the first two weeks of February, which forced many fruit trees into bloom. Conditions were ideal for field operations, and preparation for spring planting progressed satisfactorily throughout the region.

Station activities have included pruning and spraying orchards and vineyards; manuring, plowing, and planting garden; plowing and subsoiling rotation plats; cultivating orchards; hauling hay; and white-washing the greenhouse.

Geo. T. Ratliffe.

Yuma

The maximum temperature for the week ending February 13 was 87, minimum 38, greatest daily range 49, precipitation .01 inch.

Since January 30 the minimum temperature has not dropped below 32. During January there were 15 days in which temperatures 32 or below were recorded. The minimum for the winter so far has been 24.5. Since the first of the month the weather has been very favorable to growing crops. The almond, date, and wild apricot trees are flowering about two weeks earlier than normal.

The alfalfa seed situation is still somewhat acute, as much of last year's crop remains unsold. The present price is about \$15 per hundredweight, and very little seed is moving. It is anticipated that the recent general rains throughout California will open up a better demand for alfalfa seed. It is estimated that the hold over will amount to nearly 20 carloads. Alfalfa hay is selling for \$18 per ton baled. Grain sorghum in the head for stock feed is bringing \$35 per ton.

A carload of Acala cotton seed from the Coachella Valley has been ordered by project growers for testing this year. Arrangements have been made to use part of this seed for planting the entire cotton acreage of the North Gila Valley, so as to create a one variety cotton growing community to supply pure seed for the future needs of the Yuma Valley. The total production of cotton on the project for the 1925 season will amount to approximately 28,000 bales.

REPORT

OF THE

COMMISSIONERS OF THE LAND OFFICE

IN RESPONSE TO A RESOLUTION

PASSED

BY THE HOUSE OF COMMONS

ON THE 12TH MARCH 1881

IN RELATION TO THE

LANDS

AND

THEIR

MANAGEMENT

IN

THE

UNITED KINGDOM

AND

THE

Yuma (continued)

Station work performed during the week consisted of ginning cotton, harvesting alfalfa, building hog fences, putting concrete floor in pump house, pruning ornamentals and small fruits for propagating material; and irrigating alfalfa, barley, wheat, and winter legumes.

The yields of Pima cotton in the irrigated rotations on the U. S. Yuma Field Station in 1925 are given in the following table:

Rotation No.	Plat No.	Stand per acre	Yields	
			Per plat	Per acre
			Pounds	Pounds
4	D - II - 8	11,764	317.8	1271.2
5	- 9	11,340	637.5	2550.0
6	- 10	11,748	249.0	996.0
7	- 11	11,032	254.0	1016.0
20	C - I - 8	11,096	490.5	1962.0
22	- 6	12,448	285.5	1142.0
23	C - II - 6	11,604	353.8	1415.2
30	- 7	11,272	258.3	1033.2
40	C - I - 13	11,768	648.5	2594.0
40	- 10	11,940	213.0	852.0
44	C - II - 13	11,084	462.0	1848.0
44	- 10	12,348	566.5	2266.0
46	- 14	12,860	275.5	1102.0
50	D - II - 2	11,756	278.5	1114.0
52	D - I - 2	12,452	670.0	2680.0
60	D - II - 13	12,720	275.0	1100.0
60	- 14	10,052	237.3	949.2
61	D - I - 6	12,700	407.5	1630.0
61	- 7	11,524	246.0	984.0
63	- 13	11,660	414.5	1658.0
63	- 14	12,928	326.0	1304.0
Maximum	-----	12,928	670.0	2680.0
Minimum	-----	10,052	213.0	852.0
Average	-----	11,814	374.6	1498.4

Edward G. Noble

Demonstrations on Reclamation Projects

Belle Fourche

During the week ending January 30 the second full trainload of livestock left Newell. There were 18 cars of sheep and 8 cars of hogs. With full trains and through service much better time is made, and there is consequently less loss from shrinkage. The stockmen are greatly in favor of through stock trains and are willing to cooperate in the assembling of these large shipments.

Dr. M. M. Davis, who had charge of the eradication of sheep scabies on the project last summer and fall, is again here for the purpose of inspecting all the bands of sheep. Dr. Davis will be stationed here



Belle Fourche (continued)

for this work until all bands of sheep are examined. Due to the heavy condition of the roads, the veterinarian is traveling on horseback and examining the nearby bands. No evidences of scabies have been found.

W. D. Buchholz, secretary of the Irrigation District; R. L. Bronson, of Belle Fourche; and the State Secretary of Agriculture, B. F. Myers, of Pierre, left during the week for Washington to aid in legislation affecting reclamation affairs and to give assistance on committee hearings to be held there in the near future. These representatives were supplied with a mass of important data bearing on the needs and conditions of the local project.

Two lots of milk were tested for butter-fat during the week.

The report for the week ending February 6 is as follows:

At a recent meeting of the State Bankers' Association club work was endorsed and is to be more enthusiastically supported in the future, not only by assisting club members in the financing of their projects, but also by taking a real part in the supervision of the clubs. At a meeting in Rapid City, in which most of the local banks were represented, this action by the State Bankers' Association was endorsed. The local bankers took a real interest in this meeting, and with their active support livestock clubs should expand and develop rapidly.

With the exception of two farms, the traveling in connection with the inspection of sheep for scabies has been made on saddle horses. No sheep scab has been discovered, but one case was reported the last of the week.

Five lots of seed corn were tested with the following results: Three lots were slightly above 85 per cent; one was just under 85 per cent; and one tested very weak. Corn that was picked before frost is generally good for seed, but little was selected at that time.

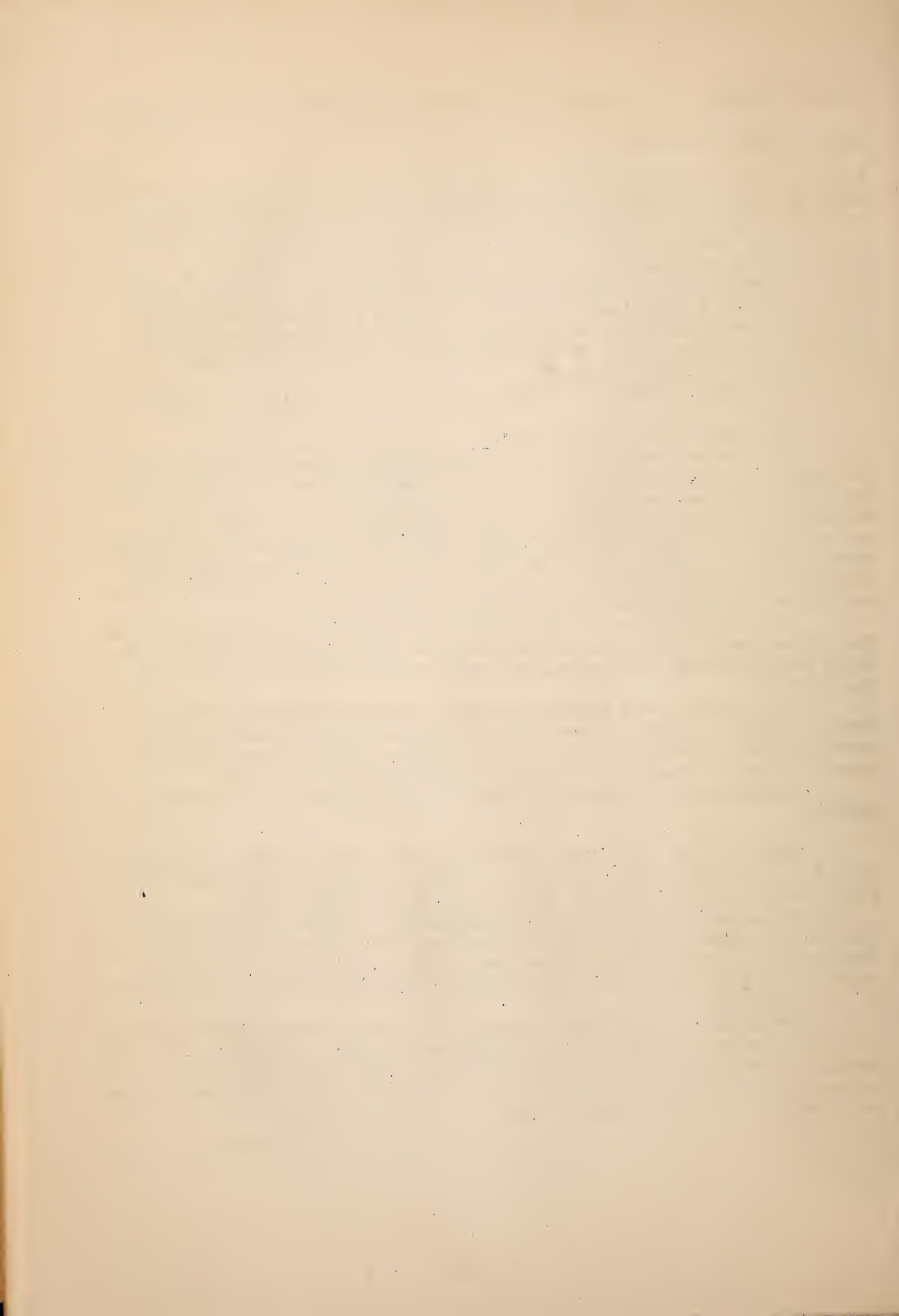
Butter-fat is bringing 37 cents and eggs 25 cents on the local markets.

Three days of the week ending February 13 were spent in the field with Dr. Davis inspecting sheep for scabies. Three bands of sheep with lice were found, but no sheep scabies is known on the project.

During the week an order was placed for ten head of registered milking Shorthorn cattle, to be shipped into the project from Philip, South Dakota. These cattle range from calves to heifers two to three years of age, and will cost, delivered at the Newell station, an average of \$90 per head.

The Great Western Sugar Company will erect a wagon dump at Newell for sugar beets, if 250 acres are signed up for this territory. The sugar company is offering \$8.00 per ton for beets, with a possible bonus. It is expected that contracts will soon be available and a determined effort made to sign up the required acreage.

F. E. Miller



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Vol. XXVIII

February 20 - March 6, 1926

Nos. 8, 9, & 10

Western Irrigation Agriculture

Newlands

The meteorological data recorded at this station for the period ending February 20 follow: Mean maximum 52.5, maximum 62 on February 19; mean min. 27.9, minimum 20 on February 17. There were 1.06 inches of rainfall during this period.

Plots B-7, 8, 9, 10 and the lower ends of B-16, 17, 18, 19, 20, 21, 22, and the garden have been manured and plowed. The orchard has been pruned and the brush burned. The irrigation ditches are being repaired and cleared of weeds.

Mr. Headley was a station visitor for a couple of days during the middle of the present month. He expects to visit this project once a month in the future. His chief interest is in the dairy experiment being conducted at this farm in cooperation with the Nevada State Station and the farm cost production studies on various farms throughout the project.

Mr. V. E. Scott of the State University was also a station visitor on February 18. He was chiefly interested in the dairy herd.

Two years ago the Reclamation Service made monthly measurements of the water flow and took samples from twelve drains that were included in the project drainage system. The samples were later analyzed by this station. The results of that year's work gave some rather startling data as to the quantity of soluble salts that were being carried by the water of these drains. It was estimated that about 140,000 tons of salts passed through these drains during that twelve-month period. Last year this work was abandoned by the Bureau of Reclamation, but the local office has decided to carry on similar work this year. The first 37 days of 1926 showed a total of 7,149 tons of salts as having passed through thirteen drains.

E. W. Knight

Demonstrations on Reclamation Projects

Belle Fourche

Most of the time of the week ending February 20 was spent in the field inspecting bands of sheep on the project for possible outbreaks of scabies. No re-occurrence of the trouble is known. However, seven bands of sheep were found to be infested with lice and several bands with ticks. General dipping with a recognized standard dip will be followed this summer after shearing. It now appears that the sheep scabies has been entirely eradicated from the bands of sheep on the project, as no trace of the trouble has been discovered.

Three signed accredited herd agreements were mailed to the State office. Orders for sitting eggs from standard bred poultry flocks were placed for six farm women, two cockerels were placed at one farm, and

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Belle Fourche (continued)

the final breeding pen selection made at another farm.

A poultry club consisting of six members was organized in the Empire District. This club will set Rhode Island Red eggs from a high-producing flock of poultry. Eggs are quoted at 25 cents and butter-fat at 33 cents on the local markets.

During the week ending February 27 a half carload of registered Shorthorn cattle of the milking Clay strain were shipped into the project from Philip, South Dakota. In the shipment was one bull to be used as a herd sire. There were also one mature cow and eight heifers, all of which are bred but one. These cattle were all placed on project farms, seven of the ten head being placed before shipment was made. The price ranged from \$66 to \$106 per head with all costs included.

Two show-room Rhode Island Red cockerels were ordered and received for one poultry raiser and five other male birds were sold to other project farmers. Assistance was given three poultry raisers in the selection of eggs for hatching. Two poultry club members were supplied with sitting eggs.

Fifteen calls were made to inspect sheep accompanied by Dr. Davis. No sheep scabies has been found. One case of reported scab will be investigated the first of the week.

Orders were placed and shipment made of four cars of hay. This hay has been sold to dairymen in the eastern part of the State at a price of \$11.80 f.o.b. Newell.

Eggs are worth 20 cents per dozen and butter-fat 37 cents per pound on our local markets.

During the week ending March 6 sheep scabies was found in one band of sheep adjoining the project on the north side of the Belle Fourche River. This band, consisting of 450 head, has 35 head which now plainly show scabies. This band of sheep is isolated, and where it contracted the scab mites is not known at present. Arrangements have been made for a vat and dipping will begin next week.

Two signed accredited herd agreements were sent to the State office during the week. Three lots of milk were tested for butter-fat for three farmers.

From the registered Shorthorn cattle recently shipped into the project a dairy club of five members has been formed. At present the dairy club members have \$100 raised or promised, and it is now certain that a carload of registered stock will be sent to the State Fair the coming summer. The car will consist of dairy cattle and sheep. An agricultural display of crops will be assembled, and with the addition of livestock the project should make an excellent showing. The advertising derived through the displays should benefit the entire Belle Fourche Valley.

The Great Western Sugar Company will erect a dump near the Newell station if 150 acres of sugar beets are signed up. At present over 90 acres have been signed, and it is hoped that the remaining 60 acres can be planted to beets and a dump assured for the Newell territory.

The Squire Dingee Pickle Company reports that during the coming season it will purchase pickles in the Belle Fourche Valley on contract

Belle Fourche (continued)

only and at a price 10 per cent less than last year, with a decrease of 25 per cent in acreage. This year 100 acres will be planted to pickles in Nisland, Newell, and Vale territories as against 125 acres last year. The company is enlarging its salting station about one-third to insure storing capacity for all the pickles that may be grown.

F. E. Miller

North Platte

On Saturday afternoon of the week ending February 27 a demonstration was given at the Experiment Farm on the care of sows and pigs at farrowing time. The demonstration was given right in the hog house, which was full of sows with an average of 9 pigs to the litter. The pigs were from one to three days old.

Every step in the care of sows and pigs was explained in detail and demonstrated. Special emphasis was laid on cleanliness, feeding, and care of the sow, the use of rails for protecting pigs, use of a limited quantity of bedding, removing tusks from pigs, and everything that helps to save the pigs.

The demonstration was intended especially for the benefit of pig club boys whose gilts will farrow this spring. Farmers, however, were invited also. Eighteen club boys and four farmers were in attendance.

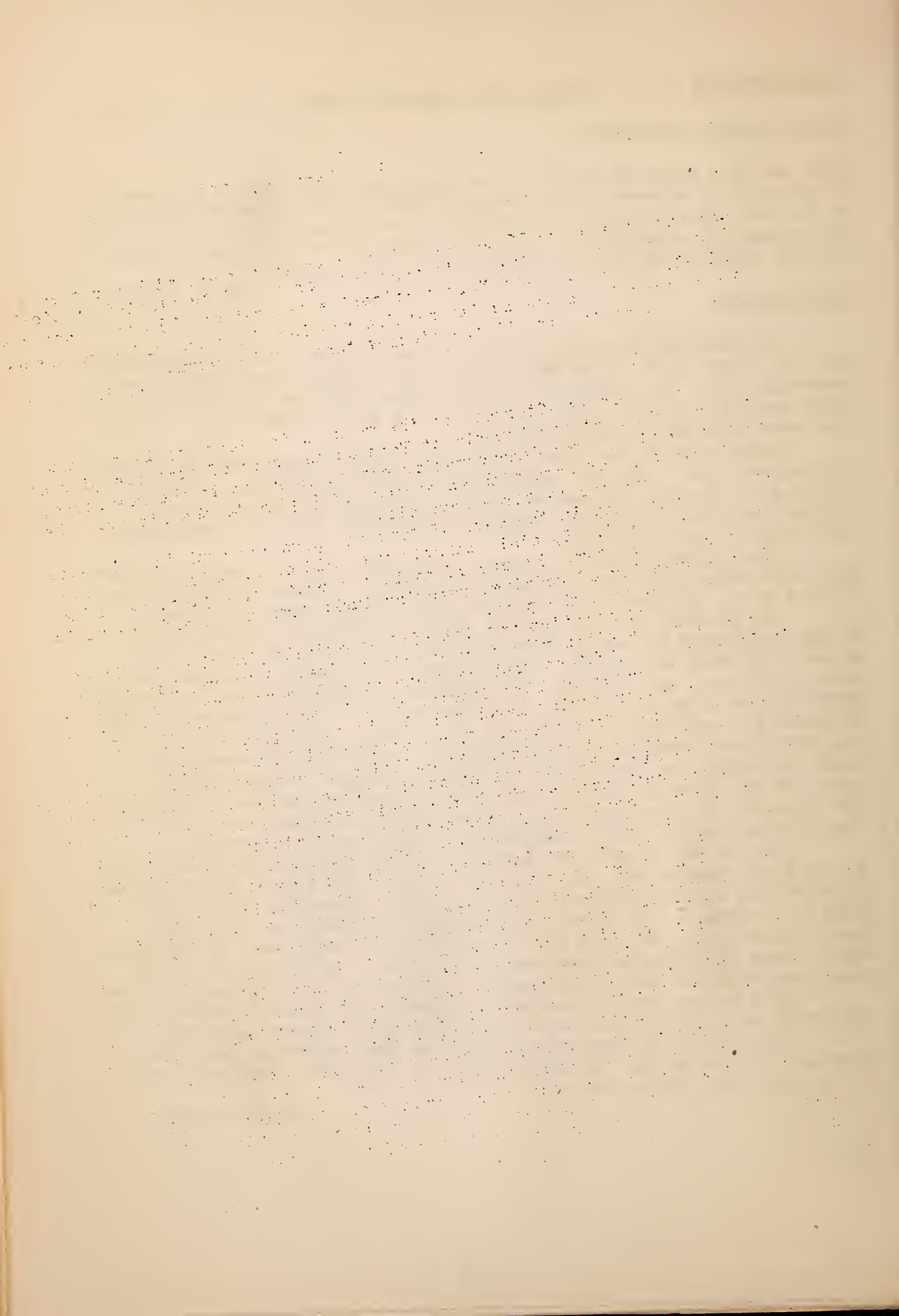
The Nebraska Poultry Special that is to run on all main lines of the Burlington during March will be in the Valley on March 15 and 16 and will make five stops. Three stops will be made each day--forenoon, afternoon, and evening. In addition to demonstrations and lectures that will be given by the talent on the train, a local program is being arranged for each town at which the train stops. Exhibits of poultry and eggs, essay contests, poster contests, and window decoration contests are among the features of the local programs. Demonstrations will also be given on grading eggs, feeding and housing the flock, and the selection of breeding stock. Considerable time has been devoted lately to assisting local committees in arranging their programs.

Most of the farmers who have good flocks are selling their eggs to the local hatcheries, and so great has been the demand for assistance in selecting breeding flocks that it has been impossible to keep up with the schedule. An effort has been made, however, to give every one an opportunity to learn how to select their best hens. In the last three weeks 26 demonstrations have been given; a total of 4,015 birds have been handled, and 1,085 have been culled out and sold on the market.

Roup in one form or another has appeared in several flocks lately. This week two affected flocks were examined and treatment outlined.

The sows at the Experiment Farm have been farrowing this week. Part of the time during the day and most of the nights have been spent in the hog house saving the pigs.

D. H. Propps.



W E E K L Y R E P O R T S
Of the Offices of
WESTERN IRRIGATION AGRICULTURE
and
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XXVIII

March 13 - April 3, 1926

Nos. 11, 12, 13, & 14

Western Irrigation Agriculture

Newlands

The meteorological data recorded at this station for the period ending March 13 follow: Mean maximum 59.3, maximum 67 on March 13; mean minimum 23.7, minimum 17 on March 6 and 7. There was .03 of an inch of rainfall on February 21, .17 of an inch on March 9, and .01 of an inch on March 10, making a total of .21 of an inch for this period.

The warm weather has been ideal for the preparation of the fields for spring planting. The teamster has been leveling the various plats that have been plowed. The orchard is being manured and plowed. The trees will be whitewashed this week to protect them against sunburn.

The irrigation and drainage ditches at the station have been burned over and the weeds destroyed. It has been necessary to straighten some of the levees and remove others.

The State Experiment Station has had one man employed during the past two weeks in laying pipe and fencing alfalfa plats on Field B for hog pastures. Two hog houses have been built and put in readiness for spring pasture. Twenty young pigs for this pasture-feeding experiment are to be purchased.

The meteorological data recorded at this station for the period ending April 3 follow: Mean maximum 65.1, maximum 74 on March 23; mean minimum 30.1, minimum 21 on March 26. There was a trace of rainfall on April 1.

The following field plantings have been made: Y-16 and 17 were seeded to Zawadke Alkali Grass on March 25. D-3 and 7; E-1, 2, 7, and 8; and F-4 and 16 were seeded to wheat on April 2 and 3. Y-13, 14, and 15 were seeded to oats on April 3.

Plats E-1 and E-8 received an application of super-phosphate fertilizer at the rate of 250 pounds per acre. Last year the wheat plats treated with this fertilizer showed a decided increase in yield over the same plats during previous years when untreated.

There has been one general irrigation given the farm during this period. All plats were irrigated.

E. W. Knight.

San Antonio

The report for the five weeks ending March 20 is as follows:

The temperature during the month of February was for the most part above normal, the mean being 59.1 as compared with the average mean for the past 20 years of 54.7. Although precipitation of only 0.10 inch was recorded for the month, all vegetation responded to the warm weather by making use of January's rainfall. By the time rain

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San Antonio (continued)

came in March practically all fields of small grains were suffering for lack of moisture, and on the "black lands" large cracks had opened in the earth. Light showers fell March 3, 4, and 5 followed by a soaking rain of 1.48 inches March 9. A period of foggy, drizzly weather, with occasional hard showers began March 15 and lasted to the end of the period covered by this report. With the rainy weather of March came considerably lower temperatures, which retarded the germination and growth of field crops, although no freezing occurred. Very little field work has been possible since March 9. A summary of the meteorological data recorded during this period is as follows: Maximum temperature 81 (Feb. 14 and 24), minimum 31 (Feb. 20), greatest daily range 45 (Feb. 25), precipitation 3.11 inches; sky clear 18 days, partly cloudy 6 days, and cloudy 11 days. Total precipitation during 1926 to date is 6.55 inches.

Rotation corn plats were planted March 2 with ideal seedbed conditions. In spite of the fact that cool weather retarded germination and the rains of March 9 buried the seed 4 inches deep in many places, practically perfect stands emerged on all plats 16 to 18 days after planting. Corn variety and corn spacing tests were planted on Field C-5 March 8 and 9. Only a few of the more vigorous varieties had emerged by the 20th. Nine of the fourteen rotation grain sorghum plats were planted March 9 before rain put a stop to field operations. It has remained too wet to complete this planting.

In addition to operations incident to making the above plantings, field work has consisted of removing dead plants and setting out new ones in orchards, vineyards, nurseries, and grounds; spraying and cultivating orchards, vineyards, and nurseries; plowing Field D-4 preparatory to starting a pistache orchard; disking and weeding miscellaneous fields; soil moisture sampling; and building an east line fence.

Mr. D. A. Savage, of the U. S. Yuma Field Station, was a visitor February 23.

Geo. T. Ratliffe.

Demonstrations on Reclamation ProjectsBelle Fourche

During the week ending March 20 milk samples were taken at two dairy farms and tests of butter-fat run on 39 cows. Feed costs and production records were computed for the month. Two accredited herd agreements for tuberculin testing were forwarded to the State office.

One day of the week was used in inspecting the livestock belonging to the club boys and girls and in advising with them on the feeding and management of their stock. It is very probable that a registered Shorthorn club can be organized immediately and a registered Holstein club this summer. The Shorthorn club can start now with five members, but the Holstein club will need two more members before it is recognized as a club under the supervision of the State Extension Department. An interesting Ayrshire club meeting was held Saturday afternoon at Eli Long's farm.

The only band of sheep that we know has scabies had its first dipping during the week. The final dipping will be given on next Sunday.

Belle Fourche (continued)

One day was spent in the field with County Agent Ellison on livestock and club work.

Eggs are worth 15 cents per dozen and butter-fat 36 cents per pound on the local markets.

During the week ending March 27 Dr. Niederauer, State veterinarian, tested eight herds of dairy cattle for tuberculosis. Five of these herds were given the first test, but the other three herds had been tested once previously. Tested cattle are in demand and find ready sale especially to dairymen who have accredited herds. At present there are 17 accredited herds on the project and 20 herds that have passed the first test.

Milk samples were gathered at two farms and tests were made for butter-fat. Feeding matters were discussed with the owners and books furnished in which to keep production records.

Two community meetings were attended at which matters pertaining to water charges, sugar beets, pickles, and other cash crops, as well as livestock problems, were brought up and lively discussions followed.

The final inspection of bands of sheep on and near the project was completed during the week. One band is to be dipped the second time. With the exception of this one band, no scabies has been found this spring.

Butter-fat is quoted at 34 cents per pound and eggs at 15 cents per dozen on the local markets.

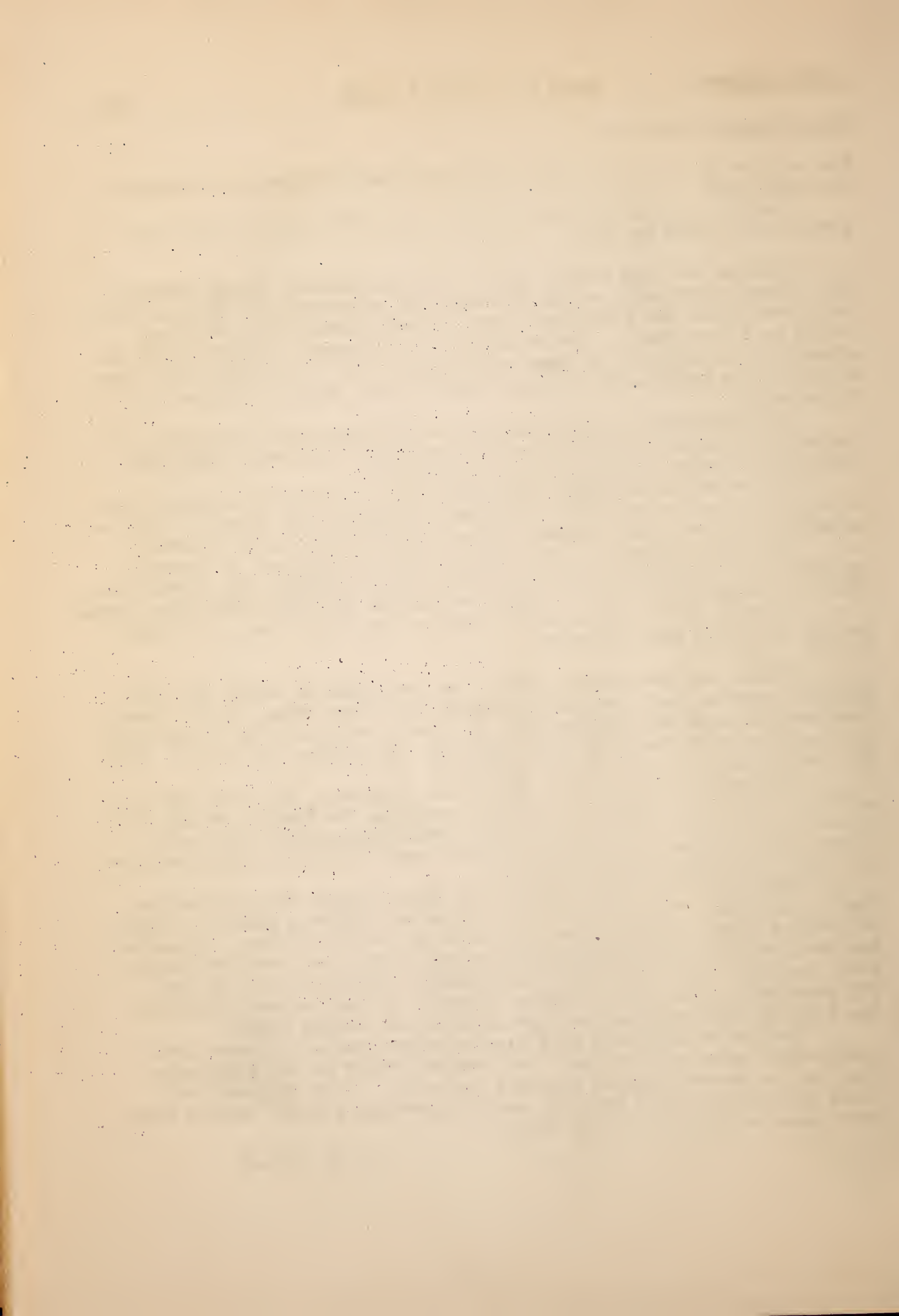
During the week ending April 3 the only band of sheep near the project affected with scabies was dipped the second time, and the premises were cleaned and disinfected. Dr. Davis, who has been in charge of the eradication of sheep scabies, has left the project, as no more visible indications of scabies could be found.

The beet situation about Newell has improved. The city and one merchant have hired two men to aid in shoveling the beets from the beet wagons to the cars. The Great Western Sugar Company will have only a shovel dump at Newell this year. In the Newell territory approximately 230 acres have been signed for beets.

Serum and virus were ordered for three farmers for vaccinating their pigs before weaning time. Due to recent storms a number of cases of trouble with livestock have been reported to this office. Pneumonia has been more or less prevalent during the winter, but very few losses have resulted. The lamb crop on the project promises to be the best yet recorded. Good hay and plenty of grain the past winter have kept the ewes in condition and resulted in large and rugged lambs.

Samples of seed corn have been received from six farmers, and germination tests will be run. Two samples tested at the Experiment Farm during the week proved suitable for seed. It is believed that there is plenty of seed corn for spring planting, but all farmers have been urged to have their seed tested.

V. E. Miller.



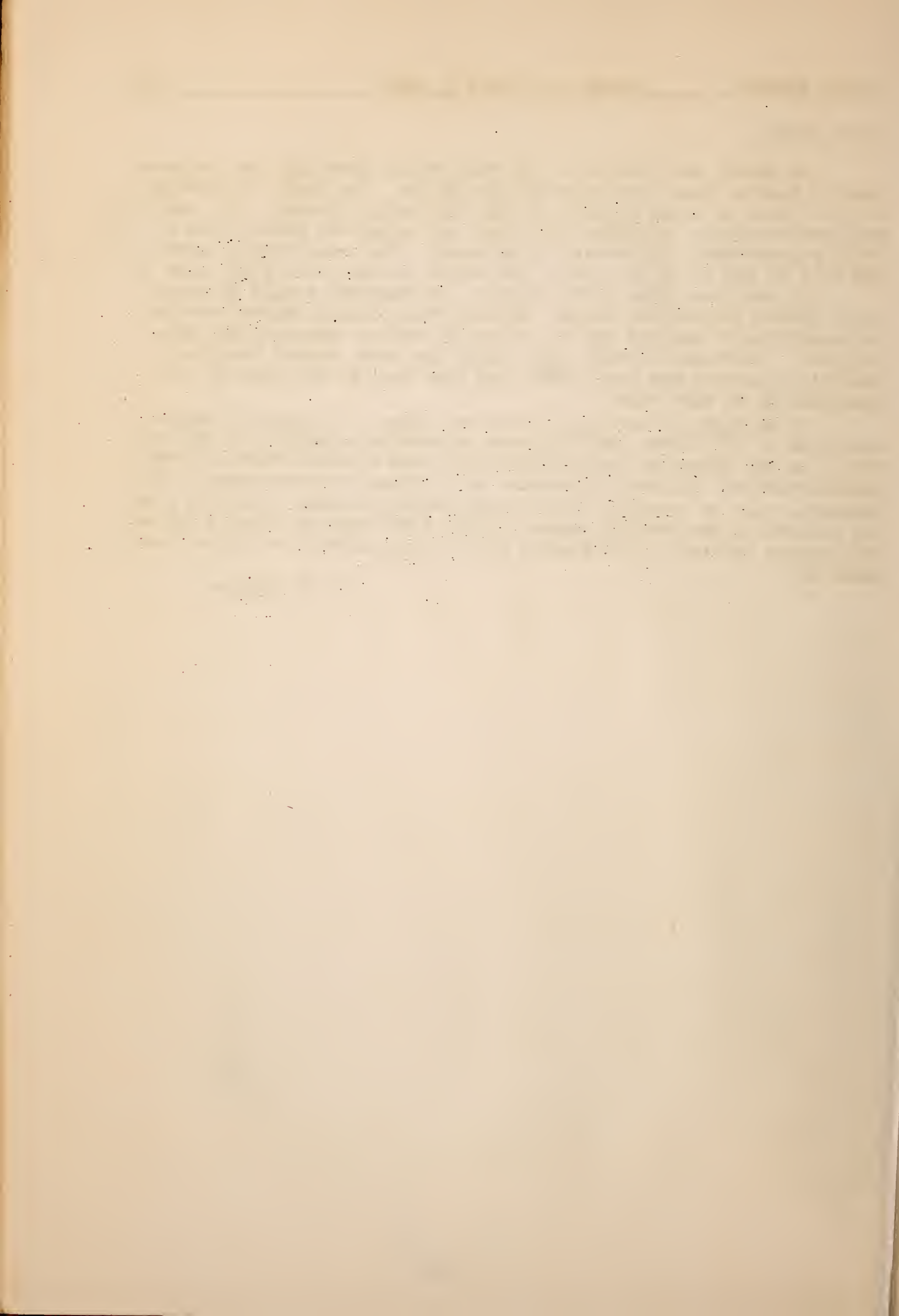
North Platte

On Monday and Tuesday of the week ending March 20, the Nebraska Poultry Special made five stops in the Valley. The train, consisting of nine cars, is being operated by the Burlington Company. The exhibits and demonstrations, occupying five cars, are under the supervision of the Poultry Department, University of Nebraska. The train started March 1 and will be out until the end of the month, making three stops each day.

At the five stops in the Valley, ten thousand people by actual count passed through the train. At each stop local programs were put on consisting of poultry and egg exhibits, poster contests, and essay contests. Professor Marsden, who judged the eggs, stated that the exhibit at Morrill was the largest and best that he had seen on the excursion up to that time.

At Mitchell an all-day program was given. The poultry exhibit consisted of 164 birds, and 75 plates of eggs were entered in the egg show. In the afternoon the agriculturist gave demonstrations in breed characteristics, followed by housing and feeding demonstrations. The Community Club of Mitchell offered cash prizes to school children from the seventh to the twelfth grades for the best essay on "What I Saw on the Poultry Special." The stories will be due and will be judged Monday, March 22.

D. H. Propps.



W E E K L Y R E P O R T S
Of the Offices Of
WESTERN IRRIGATION AGRICULTURE
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Vol. XXVIII

April 10—24, 1926

Nos. 15, 16, & 17

Western Irrigation Agriculture

Huntley

The report for the week ending April 24 is as follows:

With weather conditions favorable for field work during most of the month of April and the latter part of March, much of the spring seeding is completed. Due to prolonged drouth, however, soil moisture is lacking for the germination of seeds, and preparation is being made to irrigate crops that have come up.

High winds have resulted in some damage from soil blowing. On dry lands adjacent to the project, loss of winter wheat stands have been general from this cause, and much of the land is being reseeded to spring wheat.

The minimum price of \$8.50 per ton for sugar beets has resulted in an increased acreage seeded to this crop. On the project, the area in this crop will probably exceed 5,000 acres, while the total for the Billings district will be about 25,000 acres.

At the station the seeding of all crops excepting potatoes and corn was completed during the week. Some work was done also on the irrigation system.

Director F. B. Linfield and Professor Clyde McKee of the Montana Experiment Station were station visitors.

Dan Hansen.

Newlands

The meteorological data recorded at this station for the period ending April 24 follow: Mean maximum 69.2, maximum 81 on the 15th; mean minimum 35.0, minimum 33 on the 10th. There was a trace of rainfall on the 4th, .45 of an inch on the 5th, trace on the 6th, .10 on the 8th, .08 on the 9th, trace on the 11th, 12th, and 17th, and .79 on the 18th, making a total of 1.42 inches for the period.

The following field plantings have been made: Y-13, 14, 15 seeded to sweet clover; B-7, 8, 9, 10, 11 seeded to sweet clover; all of G seeded to oats.

Garden plantings have been made of onions, beets, carrots, parsnips, radishes, peas, and turnips. The asparagus has been transplanted, and some 4000 poplar tree cuttings have been planted in the nursery.

One irrigation has been given during this period. The plats irrigated were: All of C; D-1, 4, 5, and 8; F-3, 9, and 15; H-6 to 12 inclusive; and J-1, 2, and 3.

Director Doten of the State Experiment Station has been a visitor twice during this period. On one of the trips he was accompanied by Mr. W. B. Headley. The cooperative work at the station was inspected and also the two pasture experiments being conducted on private farms. The

Newlands (continued)

pasture experiments are being conducted to determine, if possible, the valuation of what is termed third class when planted to a mixture of rye and sweet clover and used as pasture. The soils are those on which alfalfa does not produce well and the yields from grain crops are not profitable.

E. W. Knight

San Antonio

Meteorological data recorded at the San Antonio Field Station during the four weeks ending April 17 are as follows: Maximum temperature 82, March 21; minimum 33, March 30; greatest daily range 37, April 7; precipitation 3.02 inches (which occurred on ten separate days having from .01 to 1.34 inches each); sky clear 16 days, partly cloudy 4 days, and cloudy 8 days.

Temperatures have remained subnormal throughout March and April to date. The mean temperature for March was 57.7 as compared with the 19-year average mean of 62.2 for the same month. All plant growth and development has been slow. Corn and sorghums emerged to generally satisfactory stands, but their subsequent growth has been exceedingly slow. A freeze which occurred on the night of March 30 (minimum at station instrument shelter 33, while Weather Bureau in San Antonio recorded 40 degrees) killed a large percentage of such tender truck crops as tomatoes, peppers, and beans, and killed the leaves of corn and sorghums in this region. The growth of weeds appears to have been retarded less by cold weather than that of any other plants, and the frequent and copious rains which have occurred since the fore part of March have caused many fields to become very foul.

Nine rotation plats of milo were planted March 23, and the following day a sorghum variety test was planted on Field B-4. No further plantings were possible, because of rain, until April 3 when all rotation plats of hay sorghum were seeded. Two plats of Sudan grass were seeded April 5, and all 30 rotation plats of cotton were planted April 7 and 8. Following the planting of each crop, and preceding its emergence, sufficient rainfall has occurred to cover the seed deeply in some places and wash it out of the ground in others. This, coupled with the unseasonably cold weather, has resulted in the stand of plants on practically all plats and fields being very spotted.

In addition to field work incident to making the above plantings, station labor has been kept busy caring for lawns and ornamental plantings, thinning and cultivating corn, cultivating nurseries and gardens, taking soil moisture samples, hauling hay, and miscellaneous hoeing.

A pistache orchard, involving about two acres of Field D-4, was laid out and planted to trees from the nurseries. A total of 48 trees, including Pistacia texana seedlings, hybrid seedlings, and budded varieties, was set out as a beginning.

Dr. Yoshiji Yoshii, Professor of Plant Pathology, Tohoku Imperial University, Sendai, Japan, was a station visitor April 5.

Mr. A. C. Dillman, Associate Agronomist in charge of Flax Investigations, Office of Cereal Investigations, arrived April 16 to study flax experiments at the station.

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San Antonio (continued)

Mr. C. C. Thomas, Associate Horticulturist in charge of Plant Distribution, Office of Seed & Plant Introduction, spent a portion of April 17 going over station plantings.

Geo. T. Ratliffe.

Scottsbluff

The average maximum temperature for the week ending April 24 was 68, with a maximum of 80 on the 19th; the average minimum was 37, with a minimum of 30 on the 24th. The precipitation for the week amounted to 0.32 of an inch.

During the week the beet and oats plats in Field K were seeded. Field III-C was seeded to sweet clover with barley as a nurse crop. The ground in Field E is being prepared for additional series of irrigated rotations.

The pigs are being moved to pastures, and as rapidly as possible all stock will be started on the pasture test work.

Beet planting is about two-thirds completed in the valley. The acreage this year will be the greatest in the history of the industry in the valley. The land is being better prepared and more fertilizing is being done than ever before. The Great Western Sugar Company and the Burlington and Union Pacific Railroads are putting on another drive for "A ton more per acre" for this year.

James A. Holden.

Demonstrations on Reclamation ProjectsBelle Fourche

During the week ending April 10 two club meetings and two community meetings were attended. At the community meetings the sugar beet situation was discussed, and committees were appointed to solicit beet acreage on the new five-year contract. It now seems very probable that the Great Western Sugar Company will erect a factory in the Belle Fourche Valley in time for the 1927 crop of beets.

The two club meetings were held in Vale on Saturday; one demonstration was given to the sheep club and two demonstrations to the poultry club on the incubation and care of chicks.

Two days were spent in the field on livestock feeding problems, club organization work, and the testing of milk for butter-fat.

Butter-fat is worth 34 cents and eggs 20 cents on our local markets.

Miss Kiethline, extension specialist from the State College at Brookings, was at Newell two days of the week ending April 17, conducting a training school for club leaders and demonstrating work pertaining to the women's and girls' clubs.

The agriculturist was laid up with influenza for four days of the week, and little field work was accomplished. Shipments of cream from the project continue to grow. For the month of March 775 ten-gallon cans of cream were shipped from Newell as against 770 for the same month of last year.

Journal of Management Studies, 19(1), 67-80.

Felle Fourche (continued)

Eggs are quoted at 20 cents and butter-fat at 36 cents on our markets.

During the week ending April 24 two registered Rambouillet rams were placed on project farms to improve grade flocks of sheep. These rams are yearlings of the large blocky type and carry long fine fleeces. They sold for \$40 each. Ten milk samples were tested for one farmer. Parts of two days were spent on the range east of Vale in disinfecting buildings and disposing of carcasses of sheep which had been exposed or died from sheep scabies. In all 26 carcasses were burned, and probably the last source of infection from sheep scabies has been eradicated.

One dairy farmer who has been on the accredited herd list let his allotted time for testing elapse and was removed from the list. This farmer had been selling herd sires to project farmers, and his removal from the list stopped several pending deals for sires. This matter was taken up with the Bureau of Animal Industry and arrangements made whereby on the completion of the second test, at his own expense, this farmer will again be placed on the accredited list, as no reactors were found.

Work pertaining to the county fair livestock exhibits and to the premium list, including the advertisements, was practically completed in Newell, Vale, and Nisland. The various communities have committees appointed to work out their own exhibits and to see that they have complete exhibits, so as to become eligible for the community cash prizes awarded by the fair board.

Eggs are worth 20 cents ^{per dozen} and butter-fat 33 cents per pound on our local markets.

F. E. Miller.

North Platte

During the week ending April 10 a representative of the American Jersey Cattle Club, Mr. W. T. Holcomb, was in the valley in the interest of Jerseys. While here he assisted the agriculturist in organizing a Boys' and Girls' Purebred Jersey Calf Club of 17 members. Mr. Holcomb was well pleased with the number and quality of the Jerseys in the valley, and he promised the support of the American Jersey Cattle Club in matters pertaining to more and better Jerseys.

Through the influence of the agriculturist a farmer near Morrill purchased this week six purebred Holstein bred heifers from Barton & Sons, of Gering. The six will make an excellent foundation herd. They are all sired by a 1100 pound bull and are bred to a son of Marathon Bess Burke. Two heifers of the same breeding were also purchased for the Experiment Farm.

At the April meeting of the South Sioux Poultry Association, Mr. O'Riley, the new county agent of Goshen County, Wyoming, discussed the general subject of "The Poultry Industry." About 100 people were present. The May meeting will be devoted to a discussion of egg marketing.

North Platte (continued)

An outbreak of hog cholera was reported in Cedar Valley this week. The hogs had been purchased at a sale yard in Gering and evidently were infected when bought. The herd of 67 head was vaccinated, but the disease was already so far advanced in about ten head that they will die. The local veterinarian, Dr. Edwards, was notified, and he assisted the agriculturist in vaccinating the rest of the hogs in the yards where the sick ones came from. Attention is being given to preventing a further spread of the disease.

A High School judging contest under the supervision of Smith-Hughes teachers, was held at the Experiment Farm on Saturday and lasted all day. Four teams of three men each competed in judging horses, beef cattle, dairy cattle, sheep, hogs, poultry, and eggs. The agriculturist placed the classes, listened to reasons, and did the grading.

D. H. Propps.

W E E K L Y R E P O R T S
Of the Offices Of
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Vol. XXVIII

May 1--8, 1926

Nos. 18 & 19

Western Irrigation Agriculture

Newlands

The meteorological data recorded at this station for the week ending May 1 follow: Mean maximum 81.4, maximum 84 on the 26th, 28th, and 29th; mean minimum 46.4, minimum 40 on the 25th. There was no rainfall during this period. The comparative monthly report for April shows that it was a much warmer month than usual. The mean temperature exceeded the 20-year average by 5.6 degrees.

The work at the station has consisted of spraying the orchard; cutting volunteer rye for hay from H 6--12, inclusive, and J 8--14, inclusive; planting barley on the rotation plats F-3 and F-15; and irrigating. The volunteer rye made such a rank growth on the plats on H and J that it was necessary to cut it to prevent the young sweet clover on the H plats and the young alfalfa on the J plats from being smothered.

The irrigation given was a general one. All plats were irrigated but G, H 6--12 inclusive, and J 8--14 inclusive.

Mr. A. C. Cooley was a station visitor during this period, spending considerable time with Mr. Cline in the extension work. One day was spent at this station looking into the various plans for this year and inspecting the cooperative dairy experiment being conducted by the State Experiment Station.

E. W. Knight.

San Antonio

A summary of the meteorological data recorded for the two weeks ending May 1 follow: Maximum temperature 83, minimum 49, greatest daily range 29; precipitation 5.20 inches; sky clear 7 days, partly cloudy 3 days, and cloudy 4 days.

The heaviest rainfall ever recorded for a 24-hour period at the U. S. San Antonio Field Station occurred April 20 with a total of 4.57 inches. Slightly over four inches of this amount fell between 12.45 p.m. and 1.30 p.m. During this same period approximately a like amount of rainfall was recorded by the San Antonio office of the Weather Bureau about 6 miles north of the station. North of San Antonio and south of this station the precipitation was considerably less. On April 21 a rain of torrential character--variously reported from 6 inches to 10 inches--occurred north of San Antonio while only .12 inch was recorded at this Field Station. The damage done to crops and fields by soil washing was greater than had ever before been observed in this section by the writer. On station fields which have only a very slight slope newly planted seed was washed out of the ground in some places, while young corn and sorghum plants were completely covered with soil in other spots. The total rainfall for April was 6.65 inches; for March and April, 11.33 inches; and for the first four months of 1926 was 14.26 inches.

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF PHYSICS

PHYSICS 311
LECTURE 10

1. The first part of the lecture deals with the concept of energy. Energy is a scalar quantity that is conserved in an isolated system. It can be defined as the capacity to do work. The unit of energy is the joule (J). Energy can be stored in a system, for example, in the form of potential energy or kinetic energy. The total energy of a system is the sum of all the energies of the parts of the system. Energy can be converted from one form to another, but the total energy remains constant. This is the law of conservation of energy.

2. The second part of the lecture deals with the concept of power. Power is a scalar quantity that is the rate at which energy is transferred. The unit of power is the watt (W). Power can be defined as the work done per unit time. The total power of a system is the sum of all the powers of the parts of the system. Power can be converted from one form to another, but the total power remains constant. This is the law of conservation of power.

San Antonio (continued)

Temperatures during April continued subnormal. The maximum for the month was 83°, the lowest maximum temperature recorded for this month during the existence of the station. The mean temperature for the month was 64.9, a deficiency of 3.6 degrees as compared with the average April mean during the past 19 years.

A planting of cotton to compare Mebane, Kasch, and Acala varieties with Lone Star was made April 19 on Field C-4. A planting of cotton (Lone Star variety) on Field C-4 to be used in a thinning experiment was completed April 20 just as the torrential rain previously mentioned started. A cotton variety comparison test of Lone Star and Kekchi was planted April 26 on Field C-5. A heavy rate of planting was used throughout, and excellent stands have emerged in all cases except where seed was completely washed away.

The stands of cotton obtained on rotation plats in Field B-6 and on A 4--8 from the first planting, made April 8, were quite satisfactory. On practically all other plats the stands secured were very poor—ranging from 5 per cent to 70 per cent—due to the combination of wet, cold weather and soil washing. These latter plats were disked and harrowed April 27 and 28 and were replanted under very favorable conditions April 29 and 30.

Because of the excessive rainfall and very heavy dew each morning, it has been difficult to perform the necessary field operations. In addition to making the above plantings and replantings, farm labor has been kept busy cultivating corn and sorghums; rebuilding pasture fences; weeding rotation plats, orchards, grounds, and farm fences; and miscellaneous upkeep jobs.

Mr. A. C. Dillman, Associate Agronomist in Charge of Flax Investigations, completed his observations in connection with flax experiments at this station and left for Crowley, Louisiana, April 28.

Geo. T. Ratliffe.

Yuma

For the month of April the following meteorological data were recorded: Maximum temperature 106° on the 25th; mean maximum 87.8°; minimum 45° on the 4th; mean minimum 53.9°; mean temperature for the month 70.9° (compared with 15-year average of 67.8°); greatest daily range 49; precipitation .38 inch ; 20 days clear and 10 cloudy or partly cloudy.

The rainfall recorded was in the nature of light showers which occurred on the 2nd, 5th, 6th, 13th, 19th, 28th, and 29th. Heavy rains were reported from all sections surrounding the project. Storms were also quite general throughout California and Arizona.

This warm and humid weather has been favorable to the newly planted cotton. The estimated cotton acreage on the project is about 30,000. Very satisfactory stands have been secured, and the early planting has all been thinned.

Harvesting the second cutting of alfalfa hay began the latter part of April. Prices of baled hay on board cars at Yuma are about \$14 per ton.

Present reports by the Weather Bureau on the water conditions of the Colorado River indicate a low flood stage for this year.

Yuma (continued)

Station work for the past month included cultivating and thinning cotton on the rotations; harvesting alfalfa hay on the fertilizer, variety, and rotation plats; harvesting and threshing barley varieties; plowing under vetch crops on green manure plats; pollinating and pruning date palms; and general irrigating, cultivating, and hoeing.

Station visitors during the month were T. H. Kearney on April 6 and Messrs. Challender and Blair of the Bureau of Agricultural Economics on April 27.

Edward G. Noble.

Demonstrations on Reclamation ProjectsBelle Fourche

During the week ending May 1 two more signed accredited herd agreements for the tubercular testing of cattle were forwarded to the State office at Pierre. At present 23 herds are on the county accredited list, and some thirty herds are in the process of accreditation.

During the week three demonstrations were given on the drenching of sheep and the pilling of hogs for the eradication of worms. One call was made to assist in the control of mange in hogs.

Milk samples were collected and butter-fat tests made at three large dairy farms, and the production and feed costs for the month of May were computed.

One community and two livestock club meetings were attended during the week. Plans are under way to make this year's Farmers' Picnic at the U. S. Experiment Farm larger and more interesting than ever. It is to be called "Dr. Elwood Mead Day" in honor of the Reclamation Commissioner, who has promised to be present. The Governor of the State, several railway officials, and others of prominence will be in attendance.

There was a fine steady rain lasting twelve hours on Thursday and Friday of the week ending May 8, which was very beneficial to the farmers of the project. With little snow on the ground this spring and with no spring rains, the ground was dry and lacking in sufficient moisture to germinate the seeds. The farmers have had plenty of time to plant small grains and to get in their beet seed. This rain will benefit these crops and supply moisture for corn, but little of which is planted.

The Great Western Sugar Company's "Beet Special Train" will make stops at Belle Fourche and Nisland. Every effort will be made to get all the farmers to visit this train on May 20 and by improved methods add "another ton" per acre to their crop.

Two days of the week were spent on club work, getting pictures of club members with their stock and assisting them with their records of production and feed costs. One lot of milk was tested for butter-fat; and two dairymen who are interested in improved stock were told where desirable registered sires are obtainable. One club meeting was attended.

Butter-fat is worth 32 cents and eggs 20 cents on our local markets.

F. E. Miller.

W E E K L Y R E P O R T S
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Vol. XXVIII

May 15 & 22, 1926

Nos. 20 & 21

Western Irrigation Agriculture

Newlands

The meteorological data recorded at this station for the two-week period ending May 15 follow: Mean maximum 72.1, maximum 85 on the 3rd; mean minimum 37.8, minimum 30 on the 10th. There was no rainfall during this period.

The following plats were planted to corn: F-1, F-13, D-6, E-3, E-4, E-5, and E-6. Plat D-2 was seeded to sugar beets.

A potato variety experiment test was started containing Local Netted Gems, Portland Seed Co. Gems, Pride of Multnomah, Michigan Rurals, and American Wonder.

A corn variety test at the High School grounds has the following corn varieties on test: Early Murdock, Rainbow, Wimple's Yellow Dent, Northwestern Dent, Wisconsin #7, De Wolf's Prolific, and Champion White Pearl.

The orchard has been given its second spray for codling moth.

There have been two irrigations during this period. The plats irrigated were: All of B; C; All of D except 2 and 6; E-1, 2, 7, 8; all of F but 1 and 13; all of G; all of H; all of J; and Y-2—17, inclusive.

E. W. Knight

Scottsbluff

The average maximum temperature for the two-week period ending May 15 was 68, with a maximum of 87 on the 4th; the average minimum was 41, with a minimum of 28 on the morning of the 14th. There was a light frost at that time, but no damage has been reported to crops. The precipitation amounted to 1.16 inches.

During this period the plats in Field K on which corn and potatoes are to be planted were plowed and prepared and the corn planted. Fields I-IV and VI-C and a part of Field E were plowed and prepared for silage corn.

An additional series of irrigated rotations have been begun in Field E, in which sweet clover is used in various combinations as a soil-builder for beets and potatoes.

Owing to the fact that the present irrigation law will not permit of the delivery of water to those who are delinquent on water charges, practically no water has been delivered to the farms this spring. The law of December, 1925, will not be effective until the organization of the district has been completed and the operation taken over, which will not be for some time. The omnibus bill, which will give the water users the right to draw water during this interim without the payment of delinquent charges, has passed the Senate and in all probability will become a law next week. The shortage of water has not been very serious, how-

The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is of great importance in the theory of the differential equations of the second order. The second part of the paper is devoted to the study of the properties of the solutions of the differential equations of the second order. It is shown that the solutions of the differential equations of the second order are of great importance in the theory of the differential equations of the second order.

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Scottsbluff (continued)

ever, as the rains while light have been very well distributed and the weather has been largely cloudy and damp. This, with an unusual absence of wind, has made the moisture available for crop growth, and crops are looking good.

During the period the Superintendent has been with the Beet Demonstration Trains which were run over the Burlington and Union Pacific Railroads in the North Platte Valley. Very great interest was taken in these trains by the growers. This is the second year these trains have been run, and the attendance in some cases was from three to four times larger than it was last year.

The average maximum temperature for the week ending May 22 was 73, with a maximum of 83 on the 20th; the average minimum was 43, with a minimum of 37 on the 18th and 19th. The precipitation for the week has been 0.22 inch.

The corn plats in Fields C and E were planted during this period. Field I-B was seeded to oats and alfalfa. The fencing of the north half of Field D into hog pastures was completed, and the sows have been placed on pasture. The poultry plant in the northeast corner of Field E has also been fenced.

Water has been ordered for Monday of next week, and the ditches have been placed in condition. The ground is drying out rapidly and crops are needing water.

Conditions in the Valley are somewhat unsettled owing to the refusal of the Reclamation Service to grant water service to delinquents under the provisions of the Omnibus bill as was expected by the local officials. It seems that payment of the 1924 charges will be demanded before water will be delivered.

James A. Holden.

Demonstrations on Reclamation ProjectsBelle Fourche

Two days of rain during the week ending May 15 were very helpful to crops, especially the small grains. But little corn is planted. The grasses and alfalfa look fine for this season of the year.

Miss Kiethline of the State Extension force conducted a Club Leaders' Conference at Nisland on Saturday, which was of great assistance to the leaders of the girls' and women's clubs.

One meeting was attended at which arrangements were made to get out as many farmers as possible to visit the beet special train, which is scheduled to make stops at Nisland and Belle Fourche. Notices have been published in the papers and cards sent out from this office to all the farmers.

One poultry club meeting was attended at Vale. Belle Fourche and Sturgis were visited in the interest of club work.

Butterfat still remains at 32 cents per pound and eggs at 20 cents per dozen.

The sugar beet special train visited the Belle Fourche Project on

Belle Fourche (continued)

Thursday of the week ending May 22, with record crowds attending the meetings. At Nisland a hall was obtained to accommodate the throng of people desiring to listen to the lectures. Over 1100 people visited the demonstration. Two facts were stressed and demonstrated: The first was to leave the Big Beet, and the second was to thin not to exceed 12 inches between beets in a row.

Two club meetings were attended. One club is preparing for an entertainment during the coming week to raise funds to pay the expenses of a team going to the State Fair. Work has started on various demonstrations, with all the club members trying for places on demonstration teams.

Several cases of vegetable poisoning of the sheep on the range have been reported. An investigation has shown that camas caused this poisoning. Treatment has been advised.

State veterinarian Niederauer spent four days on the project testing cattle for tuberculosis on the accredited herd plan. Two lots of milk were tested for butterfat.

W. E. Miller.

North Platte

The major part of the time during the three weeks ending May 22 was devoted to egg marketing. Four days were spent at McCook with Mr. Graham, the egg marketing specialist, assisting in grading and loading out the first car at that place. The car was consigned to Carl Ahlers, 5 Worth St., New York. Prices received in New York, in terms of the New York Mercantile Exchange quotations, were: Extra Whites, in new cases with white fillers and cup flats, 35 cents; Extra Browns, packed same as Whites, $34\frac{1}{2}$ cents; Trades, packed with strawboard fillers and flats, $28\frac{1}{2}$ cents. The U. S. Extras sold as "Storage packed Extras" and the U. S. Trades sold as "Medium Trades."

Everything is all lined up for shipping from the Valley and grading will begin Monday. The local merchants and produce men are cooperating with the producers. The grading will all be done by the Wickman Produce Company at Morrill. The agriculturist is to have general supervision of the project and will demonstrate in the candling room until the candlers become familiar with the U. S. grades.

Mr. Wickman has contracted with the producers to collect the eggs from the different assembling points, candle and grade them, furnish the cases, using white fillers and flats in the top grades, and attend to all of the business for a flat rate of 4 cents a dozen. Whatever the producers may lack of having a full car for any shipment Mr. Wickman will supply from eggs that he will buy and grade, using the same standards as are used in grading the producers' eggs.

Producers who deliver at any assembly point other than Morrill will pay $1\frac{1}{4}$ cent a dozen for that service. Whatever the eggs sell for in New York the producers will receive, less the freight and selling charge and the handling charge of 4 to $4\frac{1}{2}$ cents a dozen.

Since the success of the project will depend so much on the quality of the eggs delivered, intensive educational work is being done throughout the valley. Grading demonstrations are given in farm homes, in grocery stores, and in produce houses. Press articles are used in local papers. The county agents of Goshen and Morrill Counties are assisting with the project.

D. H. Propps.

1900

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W E E K L Y R E P O R T S
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Vol. XXVIII

May 29—June 12, 1926

Nos. 22, 23, & 24

Western Irrigation Agriculture

Newlands

During the two-week period ending May 29 a variety of corn was planted on the high school grounds. The varieties in the test are Early Murdock, Rainbow, Wimple's Yellow Dent, Northwestern Dent, Wisconsin #7, De Wolf's Prolific, and Champion White Pearl.

Plantings were made in the garden of melons, pumpkins, tomatoes, sunberries, cabbage, egg plant, and peppers. This year an experiment will be conducted on the melons to show the effect of Bordeaux mixture used as a spray to control melon wilt. Five varieties of cabbage are being used in a variety test, namely, Early Jersey Wakefield, All Season, Premium Flat Dutch, Ideal Winter, and Surehead. A fertilizer experiment is being conducted on the tomatoes. The effect of acid phosphate, calcium nitrate, and potash is to be determined when used alone and in combinations. Two applications will be given—one at planting time and the other later in the growing season. The application will be on the basis of about 200 pounds to the acre.

There have been two irrigations given. One on the 18th took in all of J, H, F-8, and Y-13 to 17 inclusive. The other, given on the 26th and 27th, took in B-5 to 22 inclusive, all of C, all of D, all of E, all of F, all of G, Y-2 to 17 inclusive, and J-1, 2, and 3.

The meteorological data recorded at this station for the two-week period ending June 12 follow: Mean maximum 89.6, maximum 96 on the 5th and 6th; mean minimum 51.3, minimum 43 on the 11th. There was .05 of an inch of rainfall on the 8th.

During this period the orchard and corn have been cultivated. First haying has started, being a little earlier than last year. As soon as the hay is hauled and weighed, the yields of the various plats will be reported.

The irrigations for the period included B-5 to 11; all of C; D-2, 3, 7; E-1, 2, 7, 8; F-3, 4, 15, 16, 10, 9; all of G; H-6 to 12, inclusive; all of J but 1, 2, and 3; and Y-2 to 17, inclusive. Irrigations are being given at more frequent intervals this season, as it is thought that the soil will benefit more if the amount of water used is increased to a point where the plants may commence to show an unhealthy condition from too much water rather than suffer from a lack of water.

An experiment is being conducted this year at this station in an attempt to distribute gypsum in the irrigation water and apply it to refractory soils in solution rather than applying it dry to the plats themselves and then flooding them. A paddle wheel, storage bin, and agitating drum were constructed and placed in the irrigation ditch. So far the results have been very encouraging; and it is hoped that the method, after

Newlands (continued)

being further perfected, will become a practical means of applying gypsum to alkaline soils.

E. W. Knight.

Scottsbluff

The average maximum temperature for the week ending June 12 was 83, with a maximum of 86 on the 11th; the average minimum was 54, with a minimum of 52 on the 12th. The precipitation was 1.09 inches.

During the week the potato plats in Fields K and E were planted.

Thirty head of fall pigs that had been on self-feeder were marketed. The average weight at market was 241 pounds, and the price received was \$14.10. The spring pigs were divided and placed on pasture tests with a limited ration and self-feeder.

The water users on the Interstate Project voted on the organization of a district to comply with the requirements of the Reclamation Service in order that the provisions of the new law might be extended to the project. The organization carried by a vote of 567 to 34.

James A. Holden.

Yuma

For the bimonthly period ending May 15 the maximum temperature was 99, minimum 45, greatest daily range 49; no precipitation was recorded.

The mean temperature for the past two weeks has been slightly lower than for the last half of April. Considerable wind has been recorded since May 1, but the crops in general are making a good growth. Cotton planting and thinning have been completed, and first blossoms are reported from some sections.

A large portion of the alfalfa acreage has been turned to seed. This growth is now heavily in blossom.

Station work performed during this period included harvesting barley and wheat varieties; harvesting alfalfa on the fertilizer plats; threshing oat increase plats; cultivating cotton; plowing grain stubble; planting hemp, soybean, and cowpea varieties; general hoeing, cultivating, and irrigating.

Edward G. Noble.

Demonstrations on Reclamation ProjectsBelle Fourche

More long steady rains during the week ending May 29 were of great benefit to crops. Sugar beets appear very promising for this time of the year, and alfalfa is making a very rapid growth. South of the project the recent rains amounted to a little less than a cloudburst. At Rapid City it is reported that over six inches of rain fell in about 13 hours.

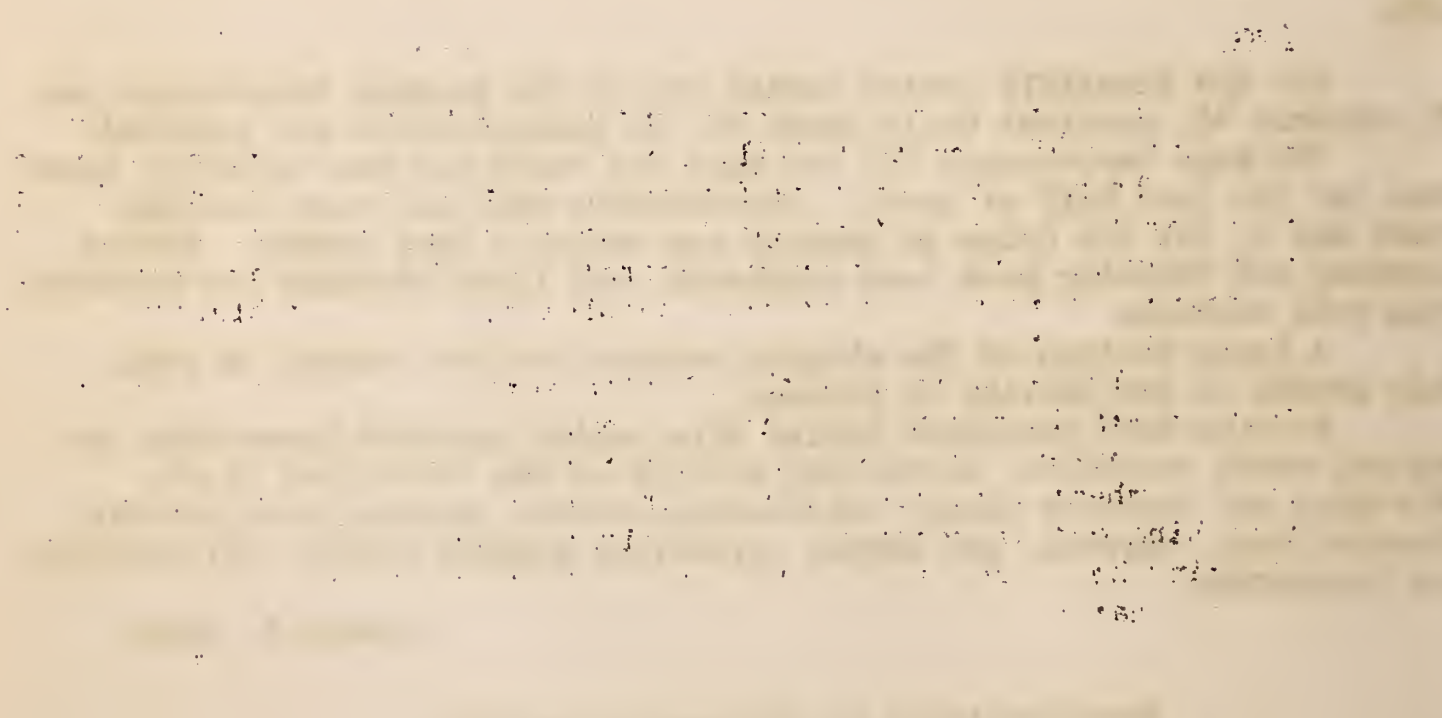
Three club meetings were postponed because of rains and bad roads. One club meeting and entertainment were held, at which time a fine program and basket supper were given for the purpose of raising funds to finance

The following is a summary of the results of the experiments conducted during the past year. The work was carried out in the laboratory of Professor J. H. Goldstein, and the results are presented in the form of a report to the Department of Chemistry.

The experiments were designed to determine the effect of temperature on the rate of reaction between hydrogen peroxide and potassium iodide. The reaction was carried out in a series of test tubes, and the rate of reaction was measured by the volume of iodine liberated. The results are shown in the following table:

Temperature (°C)	Rate of Reaction (ml. I ₂ liberated/min.)
10	0.15
20	0.25
30	0.40
40	0.60
50	0.85

From these results it is evident that the rate of reaction increases with increasing temperature. This is in accordance with the general principle that the rate of reaction increases with increasing temperature. The activation energy of the reaction was determined by plotting the logarithm of the rate of reaction against the reciprocal of the absolute temperature. The results are shown in the following graph:



The slope of the line is equal to $-E/R$, where E is the activation energy and R is the gas constant. The activation energy of the reaction was found to be 10.5 kcal/mole.

The results of the experiments are in good agreement with the results of other workers. The activation energy of the reaction has been found to be 10.5 kcal/mole by Goldstein and by other workers. The results of the experiments are in good agreement with the results of other workers.

Belle Fourche (continued)

club members going to the State Fair. A fine time was enjoyed and a neat sum earned to be added to the treasurer's bank account.

Butterfat tests were run for two farmers. Part of one day was spent in Belle Fourche with County Agent Ellison on fair and club work.

During the week ending June 5 Mr. A. C. Cooley spent two and a half days on the project, visiting the experiment farm and some of the project farmers.

Dr. Niederauer, State veterinarian, was on the project two days in connection with the tubercular testing of cattle.

J. B. Sheppard of the Ardmore Experiment Farm went over the records of the farmers who are using bulls furnished by the Ardmore station.

The Farm Bureau picnic was held on Friday with a large number of farmers attending. A basket lunch was enjoyed at noon. In the afternoon a fine program was given, and in the evening a dance was held.

Two club meetings were held during the week ending July 12. Demonstration teams in sheep clubs, dairy clubs, and pig clubs are planning to give demonstrations at achievement day; and the best live-stock teams will be selected at this time to represent the county at the State Fair. Livestock judging teams in dairying and fat stock are also working to get experience along this line.

Two days were spent in the field with Dr. M. M. Davis on the final inspection of suspicious bands of sheep before they are sent to the range for summer feeding. No indications of sheep scabies were found.

Fifty-five samples of milk were tested for butterfat and the performance of three herds computed for the month.

Eggs are worth 18 cents and butterfat 33 cents on the local markets.

F. E. Miller.

W E E K L Y R E P O R T S
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Vol. XXVIII

June 19 & 26, 1926

Nos. 25 & 26

Western Irrigation Agriculture

Huntley

The maximum temperature during the week ending June 26 was 87, minimum 38, and precipitation .12 inch.

A rainfall of .85 inch during the period from June 15 to June 22 afforded some relief to drouth conditions which had prevailed for several weeks and was especially beneficial to the beet crop. Grain on dry lands adjacent to the project is in poor condition due to drouth and gives promise of very low yields in most cases.

Beet thinning on the project is well advanced although the general condition of this crop is only fair. More than the usual beet acreage has been abandoned and reseeded to other crops because of failure to obtain satisfactory stands.

Harvest of the first cutting of alfalfa was completed during the week.

Dan Hansen.

Newlands

The meteorological data recorded at this station for the period ending June 26 follow: Mean maximum 90, maximum 101 on the 24th, 25th, and 26th; mean minimum 48, minimum 39 on the 16th. There was no rainfall during this period.

The work at the station has consisted of harvesting the first crop of hay, cultivating the corn, cleaning ditches, and irrigating. On June 6 the following plats were irrigated: B5-11, inclusive; D-2, 3, 7; E-1, 2, 7, 8; F-3, 4, 15, 16, 17; and Y-13, 14, 15, 16, 17. On June 18 and 21 a general irrigation was given.

E. W. Knight

Alfalfa Yields, Y Series, Newlands

In "Weekly Reports", issue of October 31, 1925, Vol. XXVII, page 77, a reference was made to the reclamation of nine plats of "hard land" on the west end of the Y series on the Newlands Field Station. It was noted that good progress had been made in bringing this land into production.

In his report for the two-week period ending June 26, Mr. Knight gives the yields of alfalfa from the first cutting for each of 34 plats on the Field Station, including the nine treated plats of the Y series and two untreated plats (Nos. 11 and 12). He remarks that five irrigations were given the first crop of alfalfa this year as compared with three irrigations for the first crop last year.

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Alfalfa Yields, Y Series, Newlands (continued)

Table 45/26.- Yields of alfalfa from plats in the Y series, Newlands Experiment Farm, 1925 and first cutting 1926, in tons per acre.

<u>Plat No.</u>	<u>Total yield 1925</u>	<u>First cutting 1926</u>
2	3.7	2.16
3	5.2	2.83
4	4.6	2.58
5	3.3	1.72
6	5.0	2.38
7	5.0	2.39
8	3.4	1.72
9	4.2	2.26
10	4.4	2.33
Means	<u>4.3</u>	<u>2.26</u>
11	1.7	1.30
12	1.7	1.33
Mean of 23 other plats	---	<u>1.75</u>

The hay yields obtained from the first cutting this year are shown in Table 45/26, together with the total yield obtained from three cuttings last year. For the nine plats of the Y series that have been under intensive treatment the average yield for the first crop of 1926 was 2.26 tons per acre. The total yield from these same plats last year was 4.3 tons per acre, which was regarded as very good. Plats 11 and 12, which have been irrigated like the others but not treated with alum or gypsum, yielded 1.3 tons for the first cutting this year as compared with 1.7 tons for the total yield last year. Evidently these untreated plats also are responding to copious irrigation.

There are 23 other plats of alfalfa on the Field Station this year. The yields from these ranged from 2.65 tons per acre down to 1.0 ton per acre, with an average of 1.75 tons per acre for the first cutting. Thus, one of the reclaimed plats of the Y series gave the highest yield reported this year, and the poorest of the reclaimed plats gave yields approximately the same as the average for all plats.

C. S. S.

San Antonio

Following is a summary of the meteorological data recorded at the U. S. San Antonio Field Station during the six weeks ending June 12:

1891

1892

1893

1894

1895

San Antonio (continued)

Week ending:	Temperatures			Precipitation		Sky		
	Maxi- mum	Mini- mum	G.D.R.	Inches	No. of days	Clear	Partly cloudy	Cloudy
May 8	86	64	19	1.51	4	3	2	2
" 15	91	49	40	.01	1	5	2	-
" 22	89	54	27	.13	2	4	1	2
" 29	93	62	27	.00	0	4	3	-
June 5	96	58	27	1.31	1	2	4	1
" 12	93	64	29	.16	2	5	2	-
Absolute or total	96	49	40	3.12	10	23	14	5

Temperatures during May were about normal, ranging from a maximum of 93 to a minimum of 49. The mean for the month was 74.8 as compared with an average mean for May during the past 19 years of 75.2. The precipitation during May (1.65 inches) was below normal, but all crops made good growth on moisture stored from abundant rainfall of the preceding months. The weather was ideal for the harvest of small grains.

Small grain prospects were excellent until about three weeks before harvest when rust infection became heavy and caused a serious shriveling of the grain. The excessive rains of April caused rank growth and most fields lodged very badly. Barley stripe was present and reduced the yields of some varieties as much as 60 per cent. All small grains were harvested and threshed during the period covered by this report.

Live material of 14 varieties of grass was received May 3 from the Office of Forage Crop Investigations. Six varieties were planted in the grass nursery May 4. Rain interfered with the completion of the planting and the remaining eight varieties were held in pots in the greenhouse until June 11, when they were transplanted in nursery locations.

A cotton "Cooperative series", consisting of 44 varieties and strains, was planted May 14 on Field F-3. Kekchi cotton was planted May 19 on the Herbst tract. Cotton plantings of the Office of Crop Acclimatization and Adaptation Investigations on Fields C-4 and C-5 were thinned May 28 and 29. Ten rotation cotton plats, on which stands were secured from the first planting, were thinned May 24. The remaining 20 plats (replanted April 30) were thinned June 5. The older cotton is "squaring" freely, but boll weevils and "fleas" are causing a high percentage of shedding.

A field of Hairy Peruvian alfalfa, planted in November 1925 at the north end of Field C-4 (.68 acre), was harvested May 8 and yielded 1.33 tons per acre of excellent hay.

Sixteen Inodes palms were planted May 26 along the south side of the Farm Residence tract, to extend the border row originally started.

In addition to the planting, harvesting, and threshing indicated above, farm operations have included necessary cultivation of all row crops and fallow fields; miscellaneous hoeing and hand weeding; scheduled plowing of rotation plats for May and June; plowing corral pasture; spraying vineyards; whitewashing greenhouse; miscellaneous mowing of weeds; and

San Antonio (continued)

the usual care of grounds, gardens, and nurseries.

Mr. D. R. Hooton, formerly assistant superintendent at this station, and now in the Office of Crop Acclimatization and Adaptation Investigations with headquarters at Greenville, Texas, spent four days (May 28 to 31) at the farm taking notes and thinning cotton.

Geo. T. Ratliffe.

Scotts Bluff

The average maximum temperature for the week ending June 19 was 70, with a maximum of 78 on the 14th; the average minimum was 49, with a minimum of 41 on the 17th. The precipitation amounted to 2.82 inches.

On the afternoon of the 15th occurred one of the most destructive hail, wind, and rain storms that has ever visited the valley. It covered practically all the irrigated section from Fort Laramie, Wyoming, to Bridgeport, Nebraska. According to the Great Western Sugar Company, between 400 and 500 acres of beets were totally destroyed and considerable damage done to all. The early small grain, which was heading out, was practically destroyed. However, this is not a very important crop. Potatoes, first cutting of alfalfa, and corn suffered considerable damage.

A few hours after the hail a two-inch rain fell that did as much damage as the hail by washing out crops.

On the Station Farm the first cutting of alfalfa was nearly all down and while the quality will be very poor, there was not very much loss from the storm.

The ground was badly crusted and all crops have been cultivated since the storm.

James A. Holden

Demonstrations on Reclamation ProjectsBelle Fourche

Five days vacation were taken during the week ending June 19. Saturday only was spent on the project. Two farm calls were made and four office calls received.

During the week ending June 26 most of the time was spent in the field assisting the club members in the fitting and care of their livestock in preparation for the county fair. Registry papers have been brought up to date. The Ayrshire Breeders' Association is contributing \$50 towards county fair premiums and \$40 to the State fair premiums. These liberal awards in addition to the regular prize moneys will be sufficient to warrant a shipment of livestock to the State fair, and a livestock car of club stock is now being considered.

Three caponizing demonstrations were given during the week. Capons have been profitable for a number of farm women, and the business warrants expansion. One of our former club girls has been busily and profitably engaged in three counties this summer caponizing birds on a commercial scale, charging 10 cents per head.

F. E. Miller.

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the 1990s, the number of people in the United States who are aged 65 and older has increased by 25% (U.S. Census Bureau, 1997). The number of people aged 65 and older is projected to increase by 50% by the year 2020 (U.S. Census Bureau, 1997). The number of people aged 65 and older is projected to increase by 50% by the year 2020 (U.S. Census Bureau, 1997). The number of people aged 65 and older is projected to increase by 50% by the year 2020 (U.S. Census Bureau, 1997).

12. 11. 1954

W E E K L Y R E P O R T S
Of the Offices Of
WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XXVIII July 3--31, 1926 Nos. 27, 28, 29, 30, & 31

Western Irrigation Agriculture

Newlands

The following meteorological data were recorded at this station for the period ending July 17: Mean maximum 94, maximum 101 on July 14 and 16; mean minimum 57, minimum 48 on July 8. There was .03 of an inch of rainfall on July 6.

The oats have been cut on G. The crop from these plats this year promises to be one of the heaviest crops of oats ever cut on the Experiment Farm.

The general field work has been cultivating corn, thinning beets, mowing, cleaning ditches, and irrigating.

There have been two general irrigations during this period. On July 1 and 2 all plats were irrigated. On July 13 and 14 all plats were irrigated except the oat and wheat checks on D, E, F, G, and Y. These plats were D-3, D-7, E-1, E-2, E-7, E-8, F-4, F-16, all of G, and Y-13 and 14.

The frequent irrigations will be continued throughout the irrigation season in an endeavor to determine if there will continue to be an increase in the alfalfa yields that were noticed during the first cutting. At the present time the second crop is being cut.

Some fruit has ripened and been picked. This year the yield of apricots far exceeded any yields recorded to date. The yields in the garden so far have been rather poor because of a slightly toxic condition developing in the soil. This is evidently due to having used this site for several years. The practice of furrow irrigation gradually produces an alkaline condition. It will be necessary to obtain a new garden site or flood the present one several times this fall following a treatment with gypsum.

The report for the two weeks ending July 31 is as follows:

The temperatures on the project during the month of July were about equal to a 20-year average.

During this period all the grain was cut. The results of the yields of grain will be given in a later report as soon as the grain is threshed.

The second crop of hay has been hauled and stacked. The average yield was 2,740 pounds per acre as compared with 2,722 pounds per acre last year. During 1925, and again this year, three irrigations were given between the time of cutting the first and second crops.

Five irrigations were given the first crop this year as compared with three in 1925. There was an increase of 34.9 per cent in the yield of the first crop of hay during 1926 over the yield of the first crop in 1925. These results seem to indicate that an increase in the number of irrigations would produce a corresponding increase in alfalfa production.

1. The first part of the document is a letter from the author to the editor, dated 1911. The letter discusses the author's interest in the history of the United States and the need for a comprehensive history of the country. The author mentions that he has been working on a history of the United States for many years and that he has been able to gather a great deal of material. He also mentions that he has been able to find many interesting facts and figures that are not found in other histories. The author concludes the letter by saying that he hopes the editor will find the letter interesting and that he will be able to publish the history of the United States.

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10. The Commission has also received information from the Government of the Republic of the Congo that the Government has been unable to identify the persons who have been arrested and detained in the past few years. The Commission has also received information from the Government of the Republic of the Congo that the Government has been unable to identify the persons who have been arrested and detained in the past few years.

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1. The first part of the document is a list of names and their corresponding addresses. The names are listed in the first column, and the addresses are listed in the second column. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$. It is shown that the solutions of the system (1) tend to zero as $t \rightarrow \infty$ if and only if the matrix A is Hurwitz. The second part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$ if the matrix A is not Hurwitz. It is shown that the solutions of the system (1) tend to infinity as $t \rightarrow \infty$ if and only if the matrix A is not Hurwitz. The third part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$ if the matrix A is not Hurwitz. It is shown that the solutions of the system (1) tend to infinity as $t \rightarrow \infty$ if and only if the matrix A is not Hurwitz.

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Newlands (continued)

The average acre production of the Y series for the second crop this year was 2,886 pounds. The second crop production of this series for 1925 was 2,672 pounds, showing an increase of 8 per cent during 1926. These results lead further to the conclusion that the Y series is being reclaimed.

There has been one irrigation given for the period. The plats irrigated were: all of C; D-1, 2, 4, 5, 8; E-3, 4, 5, 6; all of F but 3, 4, 15, 16; all of H; all of J; Y-2 to 12, inclusive; B-5 to 22, inclusive.

E. W. Knight.

San Antonio

The report for the three weeks ending July 3 follows:

The mean temperature of 82.3 for June 1926 was .3 degree above the normal for the past 19 years. No extreme maximums were recorded, and the mean maximum was only 93.7 degrees. Night temperatures were, for the most part, unusually high and the mean minimum was 70.9. Rainfall distribution continued very satisfactory with a total of 3.92 inches for the month. Precipitation for the first half of the year amounted to 19.83 inches, an excess of 6.69 as compared with the average for the past 19 years. A summary of the meteorological data recorded for the three weeks covered by this report follows: Maximum temperature 100 (June 16), minimum 64 (July 2), greatest daily range 28; precipitation 2.98 inches; sky clear 14 days and partly cloudy 7 days. A heavy rain which caused considerable soil washing occurred on June 27.

The second crop of alfalfa from Field C-4 was harvested June 14. A yield at the rate of 1.21 tons of air-dry hay per acre was secured. The first crop, harvested May 8, gave 1.33 tons per acre, making a total yield from the first two cuttings of 2.54 tons per acre. Rainfall distribution has been extraordinarily favorable this season and yields of alfalfa are greater than can usually be expected. The third cutting has started off with a good growth. No cotton rootrot has appeared in the field to date.

Flax threshing was started June 14, but yields will not be computed until the seed has been recleaned, as the product from the separator contained a large amount of chaff.

The first crop of hay sorghum, from both row and drilled plantings, was harvested July 1 and 2.

Grain sorghums have made excellent growth after getting a late and slow start because of the cold and wet spring weather. Damage to the early varieties by the sorghum midge is very light while late varieties have suffered severely. Birds have been worse this year than for a long time and their damage to station plantings is heavy in spite of the fact that three Mexican boys have been kept in the fields shooting birds since June 17.

The first open cotton flowers were found in Field B-6 on June 12. The plants have been "squaring" quite heavily but flowers and young bolls are scarce, due to the activity of boll weevils and "fleas". The first cotton plants dead from rootrot were found in Field B-6 on June 12. Rootrot counts were started in the rotations June 15.

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The following information was obtained from the records of the Department of the Interior, Bureau of Land Management, regarding the land owned by the United States in the State of California.

The total area of land owned by the United States in California is approximately 100 million acres. This land is divided into several categories, including National Forests, National Monuments, and other public lands.

The following table shows the distribution of land ownership in California:

Category	Area (Acres)
National Forests	60,000,000
National Monuments	20,000,000
Other Public Lands	20,000,000

This information was obtained from the records of the Department of the Interior, Bureau of Land Management, dated [Date].

San Antonio (continued)

Mr. H. H. Schutz, Agricultural Statistician for Texas, U. S. Department of Agriculture, and Mr. E. H. Johnson, Instructor in Agricultural Economics, Texas A. & M. College, were station visitors June 18. Mr. E. A. Miller, Extension Agronomist, Texas A. & M. College, spent Saturday afternoon, June 19, at the station.

Numerous threats of rain have occurred during the three weeks ending July 24, but only inconsequential showers have been received, ranging from a trace to .26 inch. Hay crops are badly in need of moisture while corn (which is now mature) and cotton will benefit by continued dry weather. In cotton fields where damage by the flea hopper (Psallus seriatus) was serious earlier in the season, the activity of the insect appears to have abated, while in a few isolated fields not previously infested considerable damage is now being observed. The cotton flea hopper has done no damage on the station except earlier in the season in plats on Field B-6 where stands were secured from the first plantings made. The injury in this field was comparatively slight and all plantings have been squaring freely during the past month. Cotton boll weevils have been present throughout the season and the infestation is heavy at this time.

Rotation milo and all plats in the sorghum variety test were harvested July 22 to 24. Milo had been damaged very little by the sorghum midge, but all the later varieties were badly blighted, the estimated loss ranging from 20 per cent to 90 per cent. Damage by birds was heavy throughout, notwithstanding the fact that a large amount of ammunition was expended by Mexican boys who were kept in the fields from the time the grain began to form until harvest. Damage done by worms (principally Heliothis obsoleta and Celama sorghiella, Riley) was unusually high this season, amounting to as much as 10 per cent of the grain in some of the varieties having large, compact heads such as Darso.

Station work has included the cultivation of cotton, orchards, roads, and alleys; mowing weeds and grass on waste land and pastures; harvesting and hauling hay sorghums; miscellaneous weeding; and the repair of farm buildings.

A summary of the meteorological data recorded at the San Antonio Field Station for the three weeks is as follows: Maximum temperature 99, minimum 67, greatest daily range 25; precipitation .64 inch (on 4 scattered dates); sky clear 14 days, partly cloudy 5 days, and cloudy 2 days.

Geo. T. Ratliffe.

Scotts Bluff

The average maximum temperature for the two weeks ending July 10 was 84, with a maximum of 99 on the 28th; the average minimum was 58, with a minimum of 46 on the 10th. The precipitation for the period was 1.85 inches. The first half of the period was hot and dry and the last half was cool and moist, it being cloudy most of the time and some rain falling for six days in succession. Crops are in good condition though late.

During the period all of the small grain plats in Fields K and E were irrigated; the corn and beet plats in the same fields were cultivated and hoed; and considerable miscellaneous work was done. The next planting of potatoes in the time-of-planting test was made during the period.

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1. The first of the two main parts of the book is devoted to a study of the history of the English language. It begins with a chapter on the English language in the Middle Ages, and then goes on to discuss the changes in the language during the Renaissance, the 17th century, and the 18th century. The second part of the book is devoted to a study of the English language in the 19th and 20th centuries. It begins with a chapter on the English language in the 19th century, and then goes on to discuss the changes in the language during the 20th century.

Scotts Bluff (continued)

The average maximum temperature for the two weeks ending July 24 was 88, with a maximum of 101 on the 18th. This is the highest recorded temperature since July 1919. The average minimum was 56, with a minimum of 49 on the 13th. The precipitation for the period amounted to .86 inch.

During the period all the beet, potato, and corn plats were cultivated and hoed and the beet plats were ditched. The potatoes in the time-of-digging test were irrigated during the period.

The second cutting of alfalfa was put in the stack during the last week. The quality of the hay was very good.

Water was turned on the beet and alfalfa plats in Field K the latter part of the week. The sweet clover plats in Rotations X and 41 in the new series in Field E were fenced and three yearling ewes were turned into each. Considerable miscellaneous work of mowing weeds and trimming up trees, etc., was done.

Mr. Scofield, of the Washington office, spent several days at the Station and, accompanied by the Superintendent, drove to Thermopolis, visiting on the way the Pathfinder Dam at Casper and the Riverton Project at Riverton, Wyoming.

James A. Holden.

Yuma

The report for the month of July is as follows:

The meteorological data recorded during the month of July are as follows: Maximum temperature 111 on the 20th, minimum 59 on the 8th, greatest daily range 47, precipitation .05 inch; mean maximum temperature 105.5, mean minimum 70.2. Twenty-four days were clear, five were partly cloudy, and two were cloudy. Since the 26th, when a light rain fell, the humidity has been very high.

Harvesting the alfalfa seed crop on the project began the first week in July. Weather conditions in general were very favorable during most of the harvest season. About all of the first crop has now been threshed. Yields from some of the first fields cut were disappointingly low. It is estimated that the total seed production this year will be much less than last year's crop. Present prices for seed are around 14 to 15 cents, and not many sales are being reported. Hay is quoted at \$14 per ton baled at Yuma.

Two bales of cotton were ginned during the latter part of the month. This picking was made from cotton planted in February. The picking season is nearly two weeks early this year. Picking in general will begin about the middle of August.

Work on the station during the month included the planting of grain sorghums in the fertilizer tests; harvesting sweet clover and alfalfa seed; harvesting alfalfa hay on the variety plats; plowing stubble plats C-38 to 41; general irrigating, cultivating, and hoeing. Fine stands and an excellent growth have been secured on the corn and grain sorghum plats in the rotations. The Pima cotton continues to fruit well, although some shedding is now in evidence during this sticky weather.

Mr. D. A. Savage, Assistant Superintendent, left on July 12 for Tucson, Arizona, where he will work in the soil laboratory with Mr. Breazeale until the middle of August.

Edward G. Noble.

Detailed description of Figure 1: The graph plots 'Percentage of total catch' on the y-axis (0-100) against 'Percentage of total effort' on the x-axis (0-100). Several curves represent different fish species. The 'Yellow perch' curve starts at (0,0) and rises very steeply, reaching nearly 100% catch with only about 10% effort. Other species like 'Rock bass', 'White perch', and 'Striped bass' have more gradual curves, indicating a more linear relationship between effort and catch. The graph illustrates that for certain species, a small fraction of the total fishing effort can result in a large portion of the total catch.

W E E K L Y R E P O R T S
Of the Offices Of
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August 7—28, 1926

Nos. 32, 33, 34, & 35

Western Irrigation Agriculture

Newlands

The meteorological data recorded at this station for the two-week period ending August 14 follow: Mean maximum 93, maximum 96 on the 1st; mean minimum 52, minimum 44 on the 13th. There was .09 of an inch of rainfall for the period, .01 inch on August 4 and .08 inch on August 7.

The grain from G and the rotation plats was threshed during this period. The following table gives the yields of the various plats.

Plat	Area Acres	Crop	Actual yield, lbs.		Yield per acre, lbs.	
			Grain and Straw	Grain	Straw	Grain
G	1.90	Oats	----	2,235	----	1,176
F-3	.25	Barley	780	403	3,120	1,612
F-15	.25	"	680	305	2,720	1,220
F-4	.25	Wheat	680	240	2,720	960
F-16	.25	"	755	345	3,020	1,380
D-3	.34	"	560	174	1,647	512
D-7	.51	"	990	411	1,941	806
E-1	.56	"	1,770	755	3,161	1,348
E-2	.57	"	835	300	1,465	526
E-7	.49	"	500	195	1,020	398
E-8	.72	"	1,730	715	2,403	993

There have been two general irrigations during this period. The plats that received irrigation twice were B-5 to 22, inclusive; all of C; D-1, 3, 4, 5, 6, 8; E-3, 4, 5, 6; all of F except 3, 4, 15, 16; all of H; all of J; and Y-2 to 17, inclusive.

Some further experimenting has been done with the apparatus built at this station for distributing gypsum into irrigation water. It was possible during a recent irrigation to get 677 pounds of gypsum into solution in an acre-foot of water. This was about 63 per cent of the entire amount of gypsum that passed through the machine. It is hoped to so improve this apparatus that a larger percentage of gypsum will go into solution and also a larger amount go through the distributor.

The meteorological data recorded at this station for the two-week period ending August 28 follow: Mean maximum 91, maximum 100 on the 24th; mean minimum 48, minimum 43 on the 29th. There was no rainfall during this period.

The general farm work has consisted of cultivating beets and corn, mowing ditches, repairing buildings, and discing on B to kill weeds.

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2. second of these is the fact that the
3. third of these is the fact that the
4. fourth of these is the fact that the
5. fifth of these is the fact that the
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8. eighth of these is the fact that the
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Newlands (continued)

There has been one general irrigation given the farm. The plats irrigated were B-5 to 22, inclusive; all of C; all of D; E-3, 4, 5, 6; all of F except plats 3 and 15; all of G; all of H; all of J; and Y-2 to 17, inclusive.

During this irrigation the gypsum distributing apparatus was given another trial after having had several improvements made in its construction. It was possible during this run to get 677 pounds of gypsum into solution in an acre-foot of water. It is hoped that such a method of applying gypsum will make it possible to reclaim some of the impervious soils in a shorter time than has been required in the method previously used of applying gypsum to the surface of the land. Such an apparatus is also feasible in the treatment of alkaline irrigation waters.

E. W. Knight.

San Antonio

The report for the four weeks ending August 21 is as follows:

The maximum temperature for each of the past four weeks was at least 100, with the extreme maximum of the summer to date (102) recorded for August 8 and 9. With one exception (91 on August 11) the range of maximum temperatures for the period was from 94 to 102. Minimum temperatures for the four weeks ranged from 70 to 79. The relative humidity was comparatively low, the total precipitation being only .41 inch; and the high temperatures were not oppressive. The available soil moisture in fields of practically all crops has been reduced to the point where very little, if any, growth is taking place. Most dry land hay fields are burned brown, and orchard trees are suffering as severely as at the corresponding date in 1925.

Large areas of cotton in the San Antonio region have been badly damaged by the cotton leaf worm, which made its appearance much earlier this season than usual. Some poisoning has been done, but from reports received the results have not been uniformly satisfactory. This failure to obtain control is probably due to one or both of two reasons: First, because of an imaginary danger, laborers have in some cases refused to pick cotton which has been poisoned with calcium arsenate, and farmers have attempted the use of various home-made mixtures; and, second, many planters, even some who have large acreages, have resorted to the "pole and bag" method of dusting instead of using efficient machinery. A scattered infestation of worms has occurred on the station, but has been so light to date that poisoning has been considered unnecessary. Boll weevils are plentiful throughout the region, and no flowering has occurred during the past ten days or two weeks. Cotton rootrot is reported to be more widespread throughout most of the State than for many years.

The third cutting of hay was made July 27 from a plat of alfalfa seeded in November 1925. Drought has prevented further growth of the crop. The yields of air-dry hay secured from the three cuttings were at the rates of 1.33, 1.21, and .45 tons per acre, respectively. Cotton rootrot was first observed to be killing the alfalfa plants July 10, when over 40 separate small areas were discovered in this plat of only .68 acre.

San Antonio (continued)

The harvesting of corn was started August 6 and completed August 21. The crop is well above average this year but exact yields cannot be given until "crib-dry" weights have been determined.

Geo. T. Ratliffe.

Scotts Bluff

The average maximum temperature for the two-week period ending August 14 was 83, with a maximum of 91 on the 4th; the average minimum was 56, with a minimum of 52 on the 7th. The total precipitation for the period was 1.24 inches, falling on six different days, the largest rainfall being .71 inch.

Water has been run throughout the period, with the exception of two days. All of the crops have been covered and are making splendid growth.

The oats and winter wheat plats have been harvested. The yields will be very poor owing to the destruction caused by hail in June. Another severe hail-storm occurred in the valley on the 12th, stripping the beets and potatoes and damaging the third crop of alfalfa. The Station was not in the path of the storm.

The digging of early potatoes is expected to commence very soon. The first two diggings of the time-of-digging test were made during this period, and the yields were as follows:

<u>Variety</u>	<u>Bushels per acre, first digging</u>	<u>Bushels per acre, second digging</u>
Cobblers	147	302
Triumphs	54	144

Digging of the commercial crop will probably commence next week.

On August 5 the annual picnic at the Farm was held. It was well attended; especially by the farmers in the valley, it being noticeable that there were more farmers here on that day than at any previous picnic.

The alfalfa has been cut twice.

The average maximum temperature for the week ending August 28 was 89, with a maximum of 101 on the 26th; the average minimum was 55, with a minimum of 51 on the 25th; no precipitation for the week was recorded. This has been an extremely hot week—the first time that a temperature of 100 or over has been recorded at the Station.

The third cutting of alfalfa was put in the stack during the week. The weather was ideal for curing it, and the quality of the hay was very fine.

Water has been run continuously throughout the week. The hot, dry weather makes it necessary to irrigate often, and the beets and potatoes in all the fields have again been watered. The precipitation for August is considerably below normal.

The third digging in the time-of-digging test for potatoes showed a yield of 219 bushels per acre for the Triumphs as compared to 144 bushels ten days ago. The Cobblers yielded 371 bushels per acre as compared

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Scotts Bluff (continued)

to 302 bushels the previous digging.

The sows began farrowing this week. The litters have all been large and indications seem to point to a larger pig crop than usual. There will be 18 sows to farrow this fall.

The early potato shipments are about finished. The prices have ranged from \$1.25 to \$1.65; and the yields have been very good, some going around 380 bushels to the acre.

The annual sugar beet tours are being made this year by districts. By this method much more time can be given to field inspections and the problems of each district.

James A. Holden.

Yuma

The report for the month of August is as follows:

The maximum temperature for the month was 113 on the 25th; the minimum was 58 on the 31st; the greatest daily range was 47 on the 1st; the precipitation was 2.27 inches.

The weather for the most part has been favorable to the growing crops. Although a few periods of hot nights and high humidities caused considerable shedding of squares and small bolls of cotton, there were many nights that were fairly cool. As the month closes the weather is very favorable for the setting of a good top crop of cotton. The cotton picking and ginning season on the project is well advanced in comparison to previous years. Up to August 29 2361 bales had been turned out by the twelve gins.

The heavy rain of August 2, in which 2.25 inches fell at the station in less than three hours, did considerable damage to the main canal along the mesa on the California side of the project. Some damage was caused to growing crops by the flood waters, and injury has been reported to cotton in the Yuma Valley on account of the water being out of the canals for about twelve days. No rain fell in the vicinity of Somerton and south; hence the serious need of irrigation water before the canals could be repaired.

Picking prices have started at \$1.25 per hundredweight, with some paying \$1.50. Prices for ginning seed cotton were reduced soon after the season opened from 35 to 25 cents per hundredweight. Cotton seed is bringing \$27 per ton at the gins, and lint is quoted locally at the close of the month at around 18 $\frac{1}{4}$ cents.

Alfalfa seed prices remain nominal with not much seed moving. Some sales have been made at prices ranging from 13 to 14 cents per pound. The second crop is coming along fairly well after the rain, but threshing this crop will not commence for another two weeks.

Cotton and grain sorghums on the station have made an excellent showing for the month. A good picking is in sight on all the cotton plats, and pickers are being sought. Grain sorghums are now heading. The alfalfa lands in the rotation and variety test have been dried up for five weeks in order to check the spreading of sand-burrs and Bermuda grass.

Station work performed during the month included the cultivation of grain sorghums and corn; threshing alfalfa and sweet clover; hoeing weeds in the rotations; mowing and cleaning ditches; pruning, propping, and bagging date palms; and general irrigating.

Mr. David A. Savage, Assistant Superintendent, returned to the station August 15, after spending a month in the laboratory at Tucson, Arizona, with Mr. Breazeale.

Edward G. Noble.

For the purpose of this study, the following hypotheses were formulated:

1990

1. The first of these is the fact that the majority of the population of the United States is now living in urban areas. This is a result of the process of urbanization, which has been going on since the beginning of the 20th century. The process of urbanization is the movement of people from rural areas to urban areas. This movement is caused by a number of factors, including the search for better living conditions, the desire for education, and the need for employment. The process of urbanization has led to the growth of large cities and the decline of small towns and villages. This has had a number of effects on the United States, including the concentration of population in a few large areas, the loss of rural life, and the development of a new urban culture.

[illegible]

The first of these is the fact that the
 total mass of the system is not constant, but
 varies with time. This is due to the fact that
 the system is not closed, and mass can enter or
 leave the system. This is a common feature of
 many systems, and it is important to take it
 into account when analyzing the system.

1. The first thing I noticed when I stepped out of the plane was the cold. It was a sharp contrast to the warm, humid air of the tropics. I had heard that the weather in the north was harsh, but I didn't realize just how cold it would be. The wind was biting, and the sun felt like a distant star. I wrapped my coat around myself and tried to ignore the shivers running down my spine. I had come here for a reason, and I knew I had to push through the discomfort. I took a deep breath and stepped forward, determined to face whatever lay ahead.

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W E E K L Y R E P O R T S
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And

DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XXVIII

September 4—25, 1926

Nos. 36, 37, 38, & 39

Western Irrigation Agriculture

Newlands

The meteorological data recorded at this station for the two-week period ending September 11 follow: Mean maximum 82.3, maximum 89 on September 5; mean minimum 40.9, minimum 35 on August 31.

The plans calling for frequent irrigations during the growth of the third crop of hay had to be abandoned due to a shortage of water. The Reclamation Service found it necessary to conserve in every possible way the use of irrigation water. So it was deemed advisable to use only the amount necessary to produce a crop rather than use an excess in an endeavor to obtain larger yields. As a result only one general irrigation has been given during this period.

The ensilage corn on D-6, F-1, and F-13 has been cut and the silo filled. The following yields were obtained from these plats:

<u>Plat</u>	<u>Area,</u> acres	<u>Yield,</u> lbs.	<u>Yield per acre,</u> lbs.
D-6	0.52	7,480	14,385
F-1	.25	3,535	14,140
F-13	.25	3,945	15,780

Alfalfa has been planted on D-3, D-7, F-4, and F-16.

All of G has been plowed and harrowed. Also some of the rotations have received their treatments of manure and gypsum.

Mr. Cooley was a station visitor on the 1st of September. He inspected the farm in general and the cooperative dairy experiment.

The meteorological data recorded at this station for the two-week period ending September 25 follow: Mean maximum 74, maximum 82 on the 12th; mean minimum 33.2, minimum 25 on the 25th. There was no rainfall during this period.

The general farm work has consisted of harvesting fruit, building corrals, mowing ditches, and putting up the third crop of hay. One general irrigation was given during this period.

The average production per acre of the third crop of alfalfa was 14 per cent greater than the yields obtained in 1925. Four irrigations were given in each of the two years to produce this crop. The Y series showed a yield per acre 14 per cent greater than the average for the rest of the farm.

E. W. Knight.

San Antonio

A weekly summary of the climatological data recorded during the period from August 22 to September 25 follow:

San Antonio (continued)

<u>Week</u> <u>ending</u>	<u>Temperatures</u>				<u>Greatest</u> <u>daily</u> <u>range</u>	<u>Precip.</u>	<u>Sky</u>		
	<u>Max.</u>	<u>Mean</u> <u>Max.</u>	<u>Min.</u>	<u>Mean</u> <u>Min.</u>			<u>Clear</u>	<u>Partly</u> <u>cloudy</u>	<u>Clo</u> <u>dy</u>
Aug. 28	100	94	63	69	30	0.19	4	2	1
Sept. 4	98	95	71	74	25	0.30	5	1	1
Sept. 11	98	96	70	73	27	.06	5	2	0
Sept. 18	97	95	69	72	26	0.00	5	2	0
Sept. 25	102	98	56	70	39	0.02	6	1	0

The only rainfall which has been received since June 28 has consisted of such small, scattered showers as to have been of no agricultural value whatever. Late summer and fall hay crops have been practically a failure. Boll weevils have been plentiful in the cotton in spite of the dry weather and resultant dwarfed growth of plants. Yields from this crop have undoubtedly been considerably depressed by the drought. Corn ripened and was harvested under ideal conditions, and yields have generally been very good. Weather conditions were also favorable for harvesting, curing, and threshing early planted grain sorghums. Yields secured from milo plantings have been well above average, notwithstanding combined injury due to cold, wet weather following planting, sorghum midge (Contarinia sorghicola), birds, corn ear worms (Heliothis obsoleta Fab.), and webworms (Celama sorghiella). Midge damage to all other varieties was much more severe, resulting in total sterility in some cases. Rice weevils (Sitophilus oryza L.) were active in all varieties from the time the grain began ripening until it was threshed. They excavated a very considerable per cent of the kernels, which were then blown out with the chaff in the process of separation.

Unseasonably hot weather prevailed the fore part of the last week covered by this report, with a maximum of 102 for September 22. A dry "norther" struck San Antonio September 25 taking the temperature down to 56 within a few hours.

The first picking of cotton was made from August 23 to September 7, inclusive. A shortage of cotton pickers was the cause of the operation dragging over such a long period. The second, and final, picking was started September 20.

Present indications are that yields will fall slightly below average.

In addition to the harvesting and threshing indicated above, station work has included the following operations:- manuring, plowing and subsoiling scheduled rotation plats; cultivating and weeding all orchards; disking fallow rotation plats and fields for Johnson grass control; harvesting Rhodes grass; mowing and burning weeds on waste lands; watering all orchard plantings made the past winter; removing dead trees from orchards; caring for grounds; and repairing farm buildings.

Messrs. A. B. Conner and R. E. Karper of the Texas Agricultural Experiment Station were visitors August 23. Mr. Homer C. McNamara spent three days, September 2 to 4, inclusive, at the station taking notes incident to cotton experiments of the Office of Crop Acclimatization and Adaptation Investigations.

Geo. T. Ratliffe.

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1990

Scotts Bluff

The average maximum temperature for the week ending September 4 was 80, with a maximum of 87; the average minimum was 50, with a minimum of 43. The total precipitation for the period was 0.32 inch in three light showers.

The yield of oats in the irrigated rotations is given in the following table:

Rotation	Pounds per Plat		Bushels per Acre	Ratio of Grain to Straw
	Straw	Grain		
1	86	124	15.5	1 to 0.69
27	86	114	14.3	1 to 0.75
65	329	281	35.1	1 to 1.17
23	303	307	38.4	1 to 0.99
25	228	232	29.0	1 to 0.98
31	255	245	30.6	1 to 1.04
61	564	556	69.5	1 to 1.01
30	103	107	13.4	1 to 0.96
60	452	408	51.0	1 to 1.10
42	875	545	68.1	1 to 1.60
22	126	114	14.3	1 to 1.10
16	98	72	9.0	1 to 1.36
32	89	91	11.4	1 to 0.97
62	546	404	50.5	1 to 1.35
44	469	391	48.9	1 to 1.20
24	62	68	8.5	1 to 0.91
45	512	328	41.0	1 to 1.56
64	658	522	65.3	1 to 1.26
48	363	307	38.4	1 to 1.18
28	74	66	8.3	1 to 1.12
71	534	516	64.5	1 to 1.04
Maximum	875	556	69.5	-----
Minimum	62	66	8.3	-----
Average	324	276	34.5	1 to 1.19

The fourth digging of potatoes in the time-of-digging test produced a yield of 455 bushels per acre for Cobblers and 308 bushels per acre for the Triumphs. Scab is beginning to show up on the Cobblers. The percentage of culls (scabby potatoes) increased from 5 per cent at the third digging to 11 per cent at this digging.

Water was run continuously during the week, and the beets and potatoes in Field K were again watered.

The sweet clover plats in Field E are being fenced and prepared for pasturing by sheep.

Considerable miscellaneous work, such as trimming up roadways and headlands, was taken care of during the week.

James A. Holden.

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1. *Journal of the American Medical Association*, 1990; 263: 1025-1028.

MiscellaneousFire on Belle Fourche Field Station

On September 24, 1926, a fire on the Belle Fourche Field Station destroyed the farm barn, one team of horses, eight sets of harness, one auto truck, one auto trailer, one saddle, 50 tons of hay, and about 15 tons of grain.

W E E K L Y R E P O R T S
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Vol. XXVIII October 2--30, 1926 Nos. 40, 41, 42, 43, & 44

Western Irrigation Agriculture

Newlands

The meteorological data recorded at this station for the two-week period ending October 9 follow: Mean maximum 72.2, maximum 86 on September 28; mean minimum 32.4, minimum 22 on September 27, October 8 and 9. There was .24 of an inch of rainfall during this period. Of this total .02 fell on October 1 and .22 on October 2.

During this period the corn at the high school grounds and on plats E-3, 4, 5, and 6 has been husked and stored at the station. The yields from the variety test conducted at the high school will be given at a later date, when the percentage of moisture can be determined from ten selected ears of each variety. The following table gives the yields of the corn plats on E.

Plat	Area, acres	Actual yield, lbs.		Yield per acre, lbs.	
		Stalks	Corn on cob	Stalks	Corn on cob
E-3	0.58	2,480	1,130	4,276	1,948
E-4	.59	2,290	1,060	3,882	1,797
E-5	.57	-----	850	-----	1,491
E-6	.54	-----	1,005	-----	1,861

The meteorological data recorded at this station for the month of October is given in the following table:

	1926	Avg. 20 yrs.
Temperature, mean maximum	71.5	67.8
" , mean minimum	31.1	32.8
" , mean	51.3	50.3
" , highest	86	82.4
" , lowest	14	20.1
Precipitation, inches	.24	.27
Wind, miles per hour	1.40	2.41
Evaporation, inches	3.47	3.74
Days clear	24	22.2
" partly cloudy	5	3.8
" cloudy	2	4.9

The temperatures have been slightly warmer than the average for this month. There was about the usual amount of precipitation.

During this period the rotation plats have received their usual yearly treatments of gypsum and manure. Fall plowing was commenced.

Newlands (continued)

This work will consume much more time than usual this year due to the necessity of plowing the old grass pasture on C and plowing and releveing the F series.

The usual cleaning of irrigation ditches has commenced so that the work can be finished before the ground becomes frozen. Some buildings are also being repaired. It was found necessary to do some roof shingling before the winter storms set in.

The following table shows how the application of manure on corn and wheat increases the yields. This experiment has been conducted for nine years. The results are conclusive proof that the use of manure on soils of this project is very beneficial.

Effect of Manure on Yield of Wheat and Corn in Rotation
Field E

Crop	Treat- ment	Yield in pounds per acre									
		1918:	1919:	1920:	1921:	1922:	1923:	1924:	1925:	1926:	Avg.
Wheat	Manured	1018:	864:	906:	735:	769:	1118:	671:	1846:	1171:	1011
	Unmanured:	617:	813:	542:	546:	376:	1040:	329:	1149:	462:	653
Corn	Manured	10474:	7919:	---	14068:	10971:	9140:	9414:	22955:	6224:	10618
	Unmanured:	6398:	7772:	---	12640:	10085:	6001:	8779:	12333:	5679*:	8125

E. W. Knight.

Scotts Bluff

The average maximum temperature for the two-week period ending October 2 was 67, with a maximum of 84 on September 29; the average minimum was 38, with a minimum of 16 on the 25th. There was no precipitation during the period.

The hardest freeze that has ever occurred in September since the establishment of the Station came on the night of the 24th, when the temperature dropped to 16. The night before it was 22 and the night following 27. The loss to potato growers from the freeze has been estimated at from 2 per cent to 20 per cent. No freezing temperatures since then have prevented the harvesting of the crop. At the Station the crop will be out at the end of the following week. One car of potatoes was shipped and another will probably have to be sold to provide storage for the rest of the crop.

During the period the fourth cutting of alfalfa was put in the shock, but it has not yet been stacked. A fair yield was obtained. The rest of the period was spent in harvesting the potatoes.

In the time-of-digging test the Cobblers gave a yield of 500 bushels to the acre and the Triumphs 431 bushels to the acre.

James A. Holden.

W E E K L Y R E P O R T S
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Vol. XXVIII November 6—27, 1926 Nos. 45, 46, 47, & 48

Newlands

The meteorological data recorded at this station for the two-week period ending November 13 follow: Mean maximum 64, maximum 74 on November 6; mean minimum 26, minimum 16 on October 31. There was only a trace of rainfall.

During this period Professors Pearce, Martin Becking, and Smith from Leland Stanford University visited the station. These men were interested in the study of plant and animal life found in alkaline waters. A trip was arranged to the various alkaline lakes in this region. The places visited were Soda Lake, Salt Wells, Carson Lake, and various brackish pools in this vicinity.

It has been the general opinion among the farmers of the project that it was not profitable to raise veal calves from Holstein dairy stock. Recently two calves were raised for veal at the station, in connection with the State dairy experiment, with the following results:

Feed required:

55.2 gallons whole milk @20¢ a gallon\$11.04
106.3 " skim-milk @ 2¢ a " 2.13
Total cost\$ 13.17

Sale of veal:

215 lbs. dressed veal @12¢ per lb. \$25.80
------------------------------------	---------------

Subtracting the total cost of feed \$13.17
from the receipts from sale of veal \$25.80
gives a profit of \$12.63

The two tables which follow give the results obtained this year in the variety tests conducted with corn and potatoes.

E. W. Knight

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF PHYSICS
CHICAGO, ILLINOIS 60637

1978

The following is a list of the members of the Division of the Physical Sciences, Department of Physics, University of Chicago, for the year 1978.

Prof. J. D. van Wazer, Chairman, Department of Chemistry, University of California, San Diego, La Jolla, California 92037.
Prof. J. D. van Wazer, Department of Chemistry, University of California, San Diego, La Jolla, California 92037.
Prof. J. D. van Wazer, Department of Chemistry, University of California, San Diego, La Jolla, California 92037.

It has been the general opinion among the members of the Division that it was profitable to make such a list of the members of the Division, especially two years after the last list was published, and to publish it with the Division's newsletter.

Prof. J. D. van Wazer, Chairman, Department of Chemistry, University of California, San Diego, La Jolla, California 92037.
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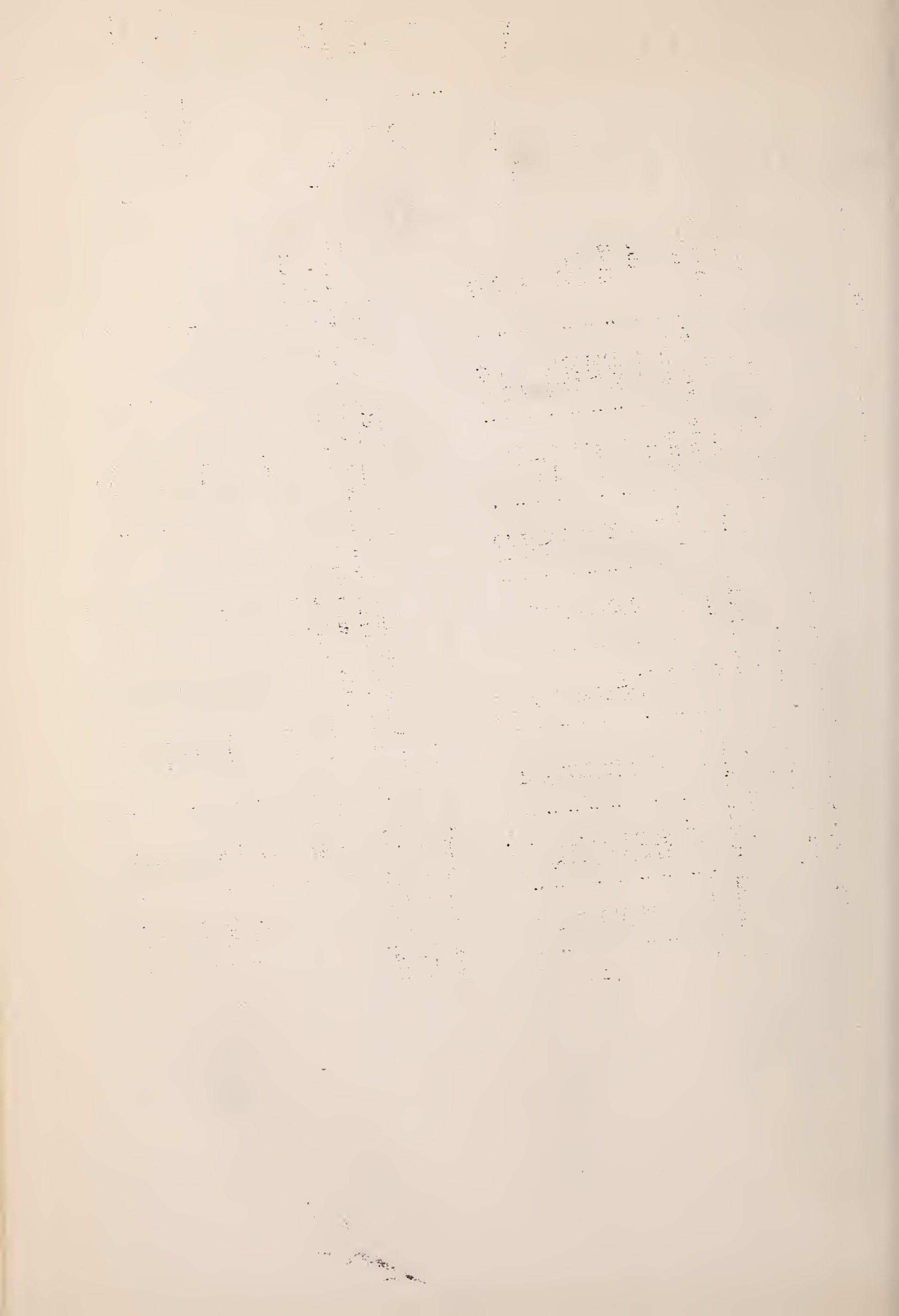
Newlands (cont'd)

Corn Results of Field Varieties Grown on High School Tract, 1926

Rank:	Variety	Average height	Area, %	Gross: % of	Dry weight	Yield: dry	Yield: shell-	Yield: per acre	Yield: per acre	Average of actual and corrected yields
:	:	Stalks: ears	acres	Stand: yields: moist	weight: lbs.	on : lbs.	ing : %	ed : corn : lbs.	shelled: perfect: stand :	lbs.
5	Early Burdock	7	2 3/4	.0872 : 78	270 : 73	197 : 83	164 : 1881	2415 : 2148		
2	Rainbow Gurney	6 1/2	.0872 : 92	336 : 82	275 : 79	218 : 2500	2720 : 2610			
1	Wimble's Yellow Dent	8	.0872 : 58	257 : 77	198 : 85	168 : 1930	3323 : 2626			
6	Northwestern Dent	6 1/2	.0872 : 86	281 : 74	208 : 79	164 : 1881	2189 : 2035			
4	Wisconsin #7	8 1/2	.0872 : 84	332 : 63	209 : 83	173 : 1979	2353 : 2168			
7	Dewolf's Prolific	8 1/2	.0872 : 78	249 : 69	172 : 84	144 : 1652	2120 : 1886			
3	Conanion White Pearl	7	.0872 : 64	253 : 75	192 : 85	153 : 1870	2923 : 2396			

Variety Test with Potatoes, 1926

Row	Variety	Yields, lbs.	Marketable yields	Comparison of	Total yields
:	:	Marketable: Culls:	Total: Per	Average of: Comparison of:	Average of : Comparison of
:	:	:	cent :	adjoining: varieties :	adjoining : varieties
:	:	:	market-: plats :	with check : plats :	with check %
:	:	:	able :	%	%
1 & 2	Local Gem	59	134 : 66	130	138
3 & 4	Portland Gem	166	194 : 86	130	103
5 & 6	Local	167	242 : 69	149	123
7 & 8	Pride of Mulnomah	260	305 : 85	174	249
9 & 10	Local	182	257 : 71	160	238
11 & 12	American Wonder	160	208 : 77	100	88
13 & 14	Local	138	219 : 63	---	---



San Antonio

The meteorological data recorded at the San Antonio Field Station for the six weeks ending November 6 are summarized in the following table.

Week ending	Temperatures			G.D.R.	Precipitation	Sky		
	Max.	Min.	Mean			Clear	Partly cloudy	Cloudy
Oct. 2	87	64	80.7	25	.11	4	3	0
9	96	54	78.5	32	.03	4	2	1
16	97	63	79.5	25	1.52	4	1	2
23	90	53	73.5	28	.15	5	2	0
30	90	45	68.9	32	.63	4	1	2
Nov. 6	74	40	59.4	24	1.66	3	2	2

Temperatures during September and October were above normal, the average mean for the two months being 83.5 and 75.1, respectively, as compared with the normal average means 79.4 and 69.3, respectively. The summer drought continued throughout September and the first part of October. General showers of moderate intensity occurred October 14 and 15, resulting in a total rainfall of 1.52 inches. This was sufficient to make good plowing possible, and also furnished seedbed moisture for early small grain plantings. Only a few small showers occurred the last half of the month. A slow, soaking rain started early in the morning of November 1 and by the following morning 1.65 inches of rain had practically all gone into the ground.

Cotton picking was completed under favorable conditions October 5. The average yield secured from the 30 rotation plats was at the rate of 439 pounds of seed cotton per acre; 5 pounds more than the mean average for the past 17 years. All cotton stalks have been mowed and raked, to be burned when sufficiently dry and before plowing the fields. All lots of cotton saved for seed were ginned on the small station gin during a few days of wet weather.

Corn samples which were taken from the wagon and weighed as the crop was brought from the fields were given their final weighing and were shelled to determine crib-dry yields and shelling percentages. The average yield from 21 rotation plats was at the rate of 41.1 bushels per acre, and the average shelling percentage indicated was 82.3. The mean average yield from the same rotations for the previous 17 years is 27.5 bushels per acre.

Final weights were secured during the period covered by this report on Sudan grass and broadcast Sumac sorghum from the rotation plats. The average yield of air-dry hay secured from 2 plats of Sudan grass in three cuttings was at the rate of 3.85 tons per acre. The average yield from 7 plats of broadcast sorghum (two cuttings) was at the rate of 3.76 tons per acre. The mean average yield of these two crops for the previous 13 and 17 years, respectively, is 5.24 and 4.63 tons, respectively.

A second crop of grain was produced by practically all the sorghums in the variety test. While considerable midge damage was done to all varieties, it was in no case anything like as severe as for the corresponding variety for the first crop. All plants and heads were smaller than those of the first crop. All varieties have been harvested and will be threshed as soon as the stalks become sufficiently dry. Bird damage was heavy while the grain was in the shock.

1. The first part of the report deals with the general situation of the country and the progress of the work during the year. It is divided into two main sections: the first section deals with the general situation and the second section deals with the progress of the work.

2. The second part of the report deals with the results of the work during the year. It is divided into two main sections: the first section deals with the results of the work in the field and the second section deals with the results of the work in the laboratory.

3. The third part of the report deals with the conclusions of the work during the year. It is divided into two main sections: the first section deals with the conclusions of the work in the field and the second section deals with the conclusions of the work in the laboratory.

4. The fourth part of the report deals with the recommendations of the work during the year. It is divided into two main sections: the first section deals with the recommendations of the work in the field and the second section deals with the recommendations of the work in the laboratory.

San Antonio (cont'd)

Oats and barley seeded in the corral pasture, and wheat seeded in the farm residence plat, have emerged to good stands and are making satisfactory growth.

Field operations have included fall plowing of rotation plats and miscellaneous fields; cultivation of fallow plats, nurseries, and orchards with disk harrow; watering grounds, nurseries, and young orchard plantings; and grubbing mesquite and huisache trees from the pasture adjacent to farm residence palm plantings.

Official visitors at the station during the period have been as follows: Mr. W. E. Snyder, Office of Crop Acclimatization, Sept. 27 to 29; Dr. J. H. Martin, Office of Cereal Crops and Diseases, Sept. 28; Dr. J. J. Taubenhuis, Texas Agricultural Experiment Station, October 5; Dr. O. F. Cook and Mr. J. E. Hubbard, Office of Crop Acclimatization, October 22; and Mr. C. S. Scofield, Office of Western Irrigation Agriculture, October 22 and 23.

Geo. T. Ratliffe.

Scotts Bluff

The average maximum temperature for the two-week period ending November²⁰ was 39, with a maximum of 62 on the 11th; the average minimum was 20, with a minimum of -2 on the night of the 20th. There have been a number of showers and snow flurries with a measured precipitation of 0.28 inch. The weather has been cold and disagreeable.

The beet harvest has been completed and the beets delivered. Practically all the beets from the valley have been delivered, only a few siloed beets being yet in the fields.

At the Field Station we have been getting ready for the winter feeding. The hog houses have been put in shape, and the fall pigs have been placed on test. There were 18 sows farrowed. Six of these were gilts that averaged 5.8 pigs to the litter. The 12 old sows averaged 8.1 pigs to the litter, or an average of 7.4 for the herd.

The Superintendent was at the Denver market the past week and secured a very uniform bunch of lambs for the lamb-feeding work. They will be started on test about the first of December.

The summaries of the yields of alfalfa and potatoes for the season of 1926 are given in the following tables.

Journal of Management Education 30(6)p. 789-804

The following information was obtained from the records of the [redacted] Department of the Interior, Bureau of Land Management, regarding the [redacted] land grant.

[The remainder of the page contains extremely faint, illegible text.]

Scotts Bluff (cont'd)

Summary of Yields of Alfalfa in Irrigated Rotation Experiments in 1926
Scotts Bluff Field Station

Number of		Pounds per plat				Tons per acre				Total yields	
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	Per plat	Per Rot'n
Rot'n:	Plat:	Crop	Crop	Crop	Crop	Crop	Crop	Crop	Crop	plat	Rot'n
										tons:	tons
65	7	---	380	---	150	---	.76	---	.30	1.06	
65	8	915	910	970	380	1.83	1.82	1.86	.76	6.27	3.67
61	7	---	---	570	---	---	---	1.14	---	1.14	
	8	880	1000	860	390	1.76	2.00	1.72	.78	6.26	
	9	925	1150	900	390	1.85	2.30	1.80	.78	6.73	4.74
40	12	---	---	480	---	---	---	.96	---	.96	
	13	820	890	830	290	1.64	1.78	1.66	.58	5.66	3.31
60	7	---	---	650	---	---	---	1.30	---	1.30	
	8	700	700	860	270	1.41	1.40	1.72	.54	5.07	
	9	830	870	950	350	1.66	1.74	1.90	.70	6.00	4.12
42	12	---	---	460	---	---	---	.92	---	.92	
42	13	685	730	780	230	1.37	1.46	1.56	.46	4.85	2.89
62	7	---	---	410	---	---	---	.82	---	.82	
	8	750	950	880	240	1.50	1.90	1.76	.48	5.64	
	9	775	980	860	350	1.55	1.96	1.76	.70	5.97	4.14
44	12	---	---	430	---	---	---	.86	---	.86	
	13	730	700	690	160	1.46	1.58	1.38	.32	4.74	2.80
8	1	710	650	650	130	1.42	1.30	1.30	.26	4.28	4.28
64	7	740	860	800	190	1.48	1.72	1.60	.38	5.18	
	8	845	890	800	330	1.69	1.78	1.60	.66	5.73	
	9	920	970	800	230	1.84	1.94	1.60	.46	5.84	4.19
48	13	875	900	820	220	1.75	1.80	1.64	.44	5.63	2.82
71	14	840	840	890	190	1.68	1.68	1.38	.38	5.12	
	15	970	860	720	240	1.94	1.72	1.44	.48	5.58	
	16	1090	980	720	200	2.18	1.96	1.44	.40	5.98	4.17
Max.		1090	1150	950	390	2.18	2.30	1.90	.78	6.73	4.74
Min.		685	380	410	130	1.37	.76	.82	.26	.82	2.82
Avg.		535	580	625	175	1.07	1.16	1.25	.35	3.84	3.74

Scotts Bluff (cont'd)Summary of Yields of Potatoes in Irrigated Rotations Experiments,
1926, Scotts Bluff Field Station.

Rot'n	Pounds per plat			Bushels per acre			Percentage	
	No.1*	Culls	Total	No.1*	Culls	Total	No.1*	Culls
4	1150	580	1730	76.7	38.6	115.3	67	33
27	2440	670	3110	162.7	44.6	207.3	79	21
25	4470	500	4970	298.0	33.3	331.3	90	10
21	4690	420	5110	312.7	28.0	340.7	92	8
26	1200	690	1890	80.0	46.0	126.0	64	36
31	3510	650	4160	234.0	43.3	277.3	85	15
61	5250	530	5780	350.0	35.3	385.3	91	9
40	5290	550	5840	352.7	36.6	389.3	91	9
20	1920	510	2430	128.0	34.0	162.0	79	21
30	2460	610	3070	164.0	40.7	204.7	80	20
60	5540	520	6060	369.3	34.7	404.0	91	9
44	4230	460	4690	282.0	30.7	312.7	90	10
24	1810	590	2400	120.7	39.3	160.0	75	25
64	5120	500	5620	341.3	33.3	374.7	91	9
71	4770	450	5220	318.0	30.0	348.0	91	9
Max.	5540	690	6060	369.3	46.0	404.0	92	36
Min.	1150	420	1730	76.7	28.0	115.3	64	8
Avg.	3590	550	4140	239.3	36.6	275.9	84	16

*No.1 includes all potatoes passing over 2" screen.

The average maximum temperature for the week ending November 27 was 48, with a maximum of 52 on the 23d; the average minimum was 25, with a minimum of 12 on the 22d. There have been several snow flurries but with a measured precipitation of only 0.03 of an inch.

The week has been spent in miscellaneous work, such as hauling hay and weighing and sorting sheep and lambs for test feeding.

The yield of sugar beets in the irrigated rotations is given in the following table.

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the problem and the objectives of the research.

No.	Date	Description		Amount	Total	Balance	Remarks
		Particulars	Particulars				
1	1/1/19	By Balance b/d		100.00	100.00		
2	1/1/19	To Cash	50.00	50.00	50.00		
3	1/1/19	To Cash	50.00	50.00	0.00		
4	1/1/19	To Cash	50.00	50.00	50.00		
5	1/1/19	To Cash	50.00	50.00	0.00		
6	1/1/19	To Cash	50.00	50.00	50.00		
7	1/1/19	To Cash	50.00	50.00	0.00		
8	1/1/19	To Cash	50.00	50.00	50.00		
9	1/1/19	To Cash	50.00	50.00	0.00		
10	1/1/19	To Cash	50.00	50.00	50.00		
11	1/1/19	To Cash	50.00	50.00	0.00		
12	1/1/19	To Cash	50.00	50.00	50.00		
13	1/1/19	To Cash	50.00	50.00	0.00		
14	1/1/19	To Cash	50.00	50.00	50.00		
15	1/1/19	To Cash	50.00	50.00	0.00		
16	1/1/19	To Cash	50.00	50.00	50.00		
17	1/1/19	To Cash	50.00	50.00	0.00		
18	1/1/19	To Cash	50.00	50.00	50.00		
19	1/1/19	To Cash	50.00	50.00	0.00		
20	1/1/19	To Cash	50.00	50.00	50.00		
21	1/1/19	To Cash	50.00	50.00	0.00		
22	1/1/19	To Cash	50.00	50.00	50.00		
23	1/1/19	To Cash	50.00	50.00	0.00		
24	1/1/19	To Cash	50.00	50.00	50.00		
25	1/1/19	To Cash	50.00	50.00	0.00		
26	1/1/19	To Cash	50.00	50.00	50.00		
27	1/1/19	To Cash	50.00	50.00	0.00		
28	1/1/19	To Cash	50.00	50.00	50.00		
29	1/1/19	To Cash	50.00	50.00	0.00		
30	1/1/19	To Cash	50.00	50.00	50.00		
31	1/1/19	To Cash	50.00	50.00	0.00		
32	1/1/19	To Cash	50.00	50.00	50.00		
33	1/1/19	To Cash	50.00	50.00	0.00		
34	1/1/19	To Cash	50.00	50.00	50.00		
35	1/1/19	To Cash	50.00	50.00	0.00		
36	1/1/19	To Cash	50.00	50.00	50.00		
37	1/1/19	To Cash	50.00	50.00	0.00		
38	1/1/19	To Cash	50.00	50.00	50.00		
39	1/1/19	To Cash	50.00	50.00	0.00		
40	1/1/19	To Cash	50.00	50.00	50.00		
41	1/1/19	To Cash	50.00	50.00	0.00		
42	1/1/19	To Cash	50.00	50.00	50.00		
43	1/1/19	To Cash	50.00	50.00	0.00		
44	1/1/19	To Cash	50.00	50.00	50.00		
45	1/1/19	To Cash	50.00	50.00	0.00		
46	1/1/19	To Cash	50.00	50.00	50.00		
47	1/1/19	To Cash	50.00	50.00	0.00		
48	1/1/19	To Cash	50.00	50.00	50.00		
49	1/1/19	To Cash	50.00	50.00	0.00		
50	1/1/19	To Cash	50.00	50.00	50.00		

The second part of the report is a detailed analysis of the data collected. It discusses the various factors that influence the results and the methods used to analyze the data.

The third part of the report is a conclusion and a summary of the findings. It discusses the implications of the results and the recommendations for further research.

Scotts Bluff (cont'd)

Summary of Yield of Sugar Beets in Irrigated Rotation Experiments,
Scotts Bluff Field Station, 1926.

Rotation Number	Total yield		per cent of stand	Plants per plat	Average weight of beets lbs.
	Pounds per plat	Tons per acre			
23	6789	17.58	71	4874	1.80
21	8000	16.00	77	5285	1.51
31	8798	17.60	67	4600	1.91
61	9730	19.46	68	4670	2.08
40	8405	16.80	67	4600	1.83
20	4320	8.64	60	4118	1.05
2	3178	6.36	42	2863	1.10
18	3906	7.81	39	2678	1.46
30	4800	9.60	53	3638	1.32
60	6955	13.91	60	4118	1.69
42	7934	15.87	60	4118	1.93
22	3960	7.92	52	3570	1.11
32	5073	10.15	60	4118	1.23
62	5890	11.78	53	3638	1.62
45 1st year	8189	16.38	63	4324	1.89
45 2nd year	6631	13.26	63	4324	1.53
64	8371	16.74	60	4118	2.03
71 1st year	6514	13.03	54	3706	1.76
71 2nd year	9090	18.18	79	5422	1.68
Maximum	9730	19.46	70	5422	2.08
Minimum	3178	6.36	39	2678	1.05
Average	6765	13.53	60	4148	1.63

James A. Holden

W E E K L Y R E P O R T S
Of the Offices Of
WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XXVIII

December, 1926

Nos. 49, 50, 51, & 52

Western Irrigation Agriculture

Newlands

The following meteorological data were recorded at this station for the period ending December 25: Mean maximum 45.6, maximum 66 on November 29; mean minimum 23.5, minimum 3 on December 24. There was .34 of an inch of rainfall during this period.

Such work as plowing, ditch cleaning, and repairing of irrigation ditches has been finished. The station laborers are busily engaged in orchard pruning, cutting out undesirable shade trees, manuring bad spots in the fields, and repairing buildings. Two buildings have been shingled, and the interior and porches have had some repairs.

The principal work in the office has been the preparation of the annual report. Some time is being spent in the laboratory in experimental work with soils as well as the usual routine analyses.

E. W. Knight.

San Antonio

The meteorological data recorded at the San Antonio Field Station for the eight-week period ending December 31 are summarized in the following table:

Week Ending	Temperatures				Precipitation	Sky		
	Max.	Min.	Mean	G.D.R.		Clear	Partly cloudy	Cloudy
Nov. 13	82	30	66.9	34	Tr.	5	1	1
" 20	81	28	56.1	43	---	6	0	1
" 27	82	40	59.1	37	.08	4	2	1
Dec. 4	82	39	62.4	39	---	5	1	1
" 11	82	46	60.1	28	.84	0	0	7
" 18	76	26	46.2	43	.20	2	0	5
" 25	70	30	54.8	23	.99	1	0	6
" 31*	74	25	45.6	42	.11	4	0	2

*Six day period.

The first killing frost of the fall occurred the night of November 9; a minimum temperature of 30 degrees was recorded. Tender vegetation in the lower-lying areas was killed, while similar plants in protected locations and on the higher areas were not damaged. The night of November 17 a heavier frost occurred; the minimum temperature was 28, which killed all unprotected tender vegetation. Temperatures of 32 degrees or below were recorded for three nights during November and eight nights during December, with an extreme minimum of 25 the night of December 29. While the tips of small grain leaves in some cases have been

San Antonio (continued)

frozen, to date no practical damage has been done to winter crops or to fruit trees.

Twenty-one days during December were recorded as cloudy, with a measurable quantity of precipitation occurring 15 days but totaling only 2.14 inches. Field activities were considerably hampered by the wet weather.

The latest varieties of sorghum to mature a second crop of grain in the variety test were harvested November 13 and were threshed November 19 and 20. Midge damage was insignificant to the early varieties, which matured before the birds were especially troublesome. Midge damage to late varieties was severe, and birds took much of the grain before it matured. Birds showed very little desire for Darso, Sumac, and Orange, but all other varieties suffered heavy losses between harvesting and threshing. Sparrows, rice birds, and Jackdaws (Grackles) did most of the damage. Yields ranged from nothing to 13.0 bushels per acre.

Through the Eighth Area Coordinator the use of a truck was secured from the Army, and approximately 5 tons of green sand was hauled to the station November 13 from a deposit located about 8 miles west of San Antonio on Leon Creek. This material was broken up and pulverized by running it through an old feed mill. It is being used in preliminary experiments to determine its value as a soil amendment to overcome the effects of high lime content.

Plantings of winter field crops were made as follows:

Oats	: Texas Red Rust Proof	: Rotation plats	: Nov. 16 and 17
"	: Selection 1913	: Field B-3, C-3	: " 26
Wheat	: Kubanka	: " E-3	: " 26
Flax	: Nursery rows	: " A-3	: Dec. 13 and 14
"	: Variety test	: " C-6	: " 17
"	: Time-of-planting	: " C-6	: " 16
Small Grain Variety test	: " A-3	: Nov. 23	
" " " "	: " D-4	: Dec. 18	
Field peas and rye for green	:	:	:
manure	:	: Rotation plats	: Nov. 17.

All the above plantings emerged to very good stands and at this time have made satisfactory growth. No winterkilling has occurred.

Station work during the period covered by this report, in addition to the operations incident to making the plantings listed above, has included shelling corn; burning cotton stalks; plowing rotation plats and Fields C-4 and C-5; cultivating orchards, fallow fields, and farm roads; sawing wood; and general repairing of harness, machinery, fences, and buildings.

Climatological Summary of 1926

Rainfall during the last four months of 1925 was sufficient to provide ample moisture for full preparation of land and insure good germination and early growth of winter crops. A strong wind, accompanied by a minimum temperature of 20 degrees, and followed by a couple of days of light sleet and snow the latter part of December 1925, left flax and small grains in a rather "whipped" condition, but not otherwise seriously dam-

Continued

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Administrative Section

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San Antonio (continued)

aged. During January 2.83 inches of precipitation were recorded. The heaviest fall of snow ever recorded for this region occurred January 23 and 24, being slightly less than 7 inches deep on the level at the Station. A minimum temperature of 21 at this time did no damage.

A combination of clear weather with temperatures above normal forced all vegetation into active growth during February, many fruit trees coming into full bloom. No rainfall of importance occurred from January 23 to March 9, and small grains were showing decided need of moisture by the end of the period. An abundance of rain fell throughout the months of March, April, May, and June. The heaviest precipitation ever recorded at this station for a 24-hour period, 4.57 inches, occurred April 20 with more than 4 inches falling within a period of 45 minutes. Drill rows were either washed out or filled full, depending on their position. Every planting of spring crops at the Station, without exception, was either interrupted or followed by a heavy rain, which caused irregular stands. No severe freezes occurred to damage fruit trees and winter crops, but subnormal mean temperature throughout March and April resulted in very slow germination and early growth of spring-planted crops. Corn planted March 2 required from 16 to 18 days to emerge, and cotton on 20 out of 30 rotation plats had to be replanted owing to the seed being washed out, covered too deeply or rotting from the continuously cold, wet weather.

Small grain prospects were excellent until about three weeks before harvest when rust infection became heavy and caused a serious shriveling of the grain. The excessive rains of April caused rank growth, and most fields lodged very badly. Weather conditions at harvest and threshing time were ideal for those operations. Although small showers were received throughout the summer, there was no rainfall of agricultural value from the latter part of June until the middle of October. Corn and grain sorghums matured and were harvested under ideal conditions. Temperatures of July and August were about normal with no excessively hot days, the maximum for the season being 102 degrees. The mean temperatures for September and October were well above normal, that for September being higher than the June and July means and 4 degrees above the average mean for the month during the past 19 years. This high mean was caused more by high minimums than by excessive maximum temperatures, although the maximum for the summer was equalled on September 22. November temperatures were subnormal, but December was slightly warmer than usual. The average mean temperature of the year 1926 was practically normal, being 68.6 as compared with 68.7 for the preceding 19 years.

Precipitation was variable during the last half of the year with a deficiency through the third quarter seriously depressing the yields of cotton, hay crops, and pasture. Rains after the middle of October were sufficient to permit preparation of seedbeds for winter crops. Sunshine was decidedly lacking during December, the previous record of 18 cloudy days for this region having been increased to 21. The total rainfall of 19.83 inches for the first six months of the year was 6.69 inches in excess of the normal, while the total for the last half of the year, 8.47 inches, showed a deficiency of 4.59 inches.

The last killing frost in the spring occurred the night of February 19, and the first killing frost of the fall occurred November 9, giving a frost-free period of 263 days, as compared with the 19-year average of 259 days.

San Antonio (continued)

Two records for the 20 years that climatological data have been taken at this station were established during 1926:

1. Greatest depth of snow on the ground at any one time,
6.75 inches January 24
 2. Greatest rainfall for 24-hour period (8 a.m. to 8 a.m.),
4.57 inches April 20 (over 4 inches fell in 45 minutes).
- There were no seriously heavy wind-storms during the year.

Geo. T. Ratliffe.

Scotts Bluff

The average maximum temperature for the month of December was 36, with a maximum of 61 on the 3d; the average minimum was 14, with a minimum of -20 on the 15th. The mean for the month was 25. There were several snow flurries, but only 0.03 inch of measured precipitation.

With the exception of the cold snap the middle of the month, which lasted only three days, the month has been mild and open and very favorable for completing the harvest.

The Bayard, Minatare, and Mitchell sugar factories finished slicing beets the latter part of the month; the Scotts Bluff and Gering factories will finish about the 10th of January. The figures for the district yields are not yet available. The yields in the territory tributary to the Mitchell factory, however, show that the average was 12.2 tons per acre, as compared with 16.7 tons per acre last year. The average sugar content was also quite low, being only 13.2 per cent. This shrinkage in yield and sugar content is the result of the hail last spring, followed by heavy wind, which reduced the stand, and the early freeze this fall which stopped the growth and reduced the tonnage and sugar content.

The potato market has strengthened and quite a movement has commenced again. The growers are getting about \$2.50 per hundredweight at the car.

Frost has caused a rather heavy storage loss in potatoes. At the Station the loss will be about 20 per cent. During the month the potatoes were sorted.

Other work at the Station was the usual routine of caring for experimental stock. All lots are making good gains.

James A. Holden.

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part of the report is devoted to a detailed analysis of the economic situation.

3. The third part of the report is devoted to a detailed analysis of the social situation.

4. The fourth part of the report is devoted to a detailed analysis of the political situation.

5. The fifth part of the report is devoted to a detailed analysis of the cultural situation.

6. The sixth part of the report is devoted to a detailed analysis of the scientific situation.

7. The seventh part of the report is devoted to a detailed analysis of the educational situation.

8. The eighth part of the report is devoted to a detailed analysis of the health situation.

9. The ninth part of the report is devoted to a detailed analysis of the environmental situation.

10. The tenth part of the report is devoted to a detailed analysis of the international situation.

11. The eleventh part of the report is devoted to a detailed analysis of the future prospects.

12. The twelfth part of the report is devoted to a detailed analysis of the conclusions and recommendations.

13. The thirteenth part of the report is devoted to a detailed analysis of the annexes.

14. The fourteenth part of the report is devoted to a detailed analysis of the bibliography.

15. The fifteenth part of the report is devoted to a detailed analysis of the index.

16. The sixteenth part of the report is devoted to a detailed analysis of the appendices.

17. The seventeenth part of the report is devoted to a detailed analysis of the maps.

18. The eighteenth part of the report is devoted to a detailed analysis of the tables.

19. The nineteenth part of the report is devoted to a detailed analysis of the figures.

20. The twentieth part of the report is devoted to a detailed analysis of the charts.

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22. The twenty-second part of the report is devoted to a detailed analysis of the photographs.

23. The twenty-third part of the report is devoted to a detailed analysis of the films.

24. The twenty-fourth part of the report is devoted to a detailed analysis of the sound recordings.

25. The twenty-fifth part of the report is devoted to a detailed analysis of the video recordings.

26. The twenty-sixth part of the report is devoted to a detailed analysis of the computer data.

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100. The hundredth part of the report is devoted to a detailed analysis of the figures.

Miscellaneous

B.P.I. Memo, 261

January 7, 1927.

MEMORANDUM FOR HEADS OF OFFICES

Gentlemen:

I take pleasure in transmitting to you the following message from the Secretary and will appreciate it if you will see that it also comes to the attention of members of your staff:

"Dr. W. A. Taylor,

Chief, Bureau of Plant Industry.

Dear Dr. Taylor:

With the opening of a new year I am impressed by the constructive achievements which the Department of Agriculture has made during the past year. These have been due in no small measure to the self-sacrificing labors performed in the various bureaus and offices. The scientific ability and zeal for truth shown by you and your colleagues are worthy of high tribute. Please accept for yourself and your associates my cordial wishes for a new year full of continued achievement and happiness.

Sincerely yours,

(Signed) W. M. JARDINE

Secretary."

Permit me to add my own good wishes. The faithful service rendered by all, welded together by the fine spirit of cooperation so universally prevalent in the Bureau, has made the Bureau of Plant Industry an organization respected on the outside, and in which we alike take pride and find pleasure in our work.

Very sincerely,

Wm. A. Taylor

Chief of Bureau.



